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## Royal School of Mines.

## PROF. SMYTH'S LECTURES ON MINING—No. VI.

[BY OUR SPECIAL REPORTER.]

The last lecture was intended to point out to you a wide field for study, and after local study for generalisation in dealing with the rocks through which the lodes pass, how in some cases they are favourable, in others unfavourable; but how there was, after all, a large margin of uncertainty, to which the miner always looks as offering a field for further enquiry and speculation. I referred especially to the beds interstratified with the limestone of the North of England, and the influence they had on the lodes. In Derbyshire and Flintshire you find limestones of different character—dark grey, pale grey, and some almost black. We shall see that these, again, among themselves have very different effects upon the lodes. I cannot give, perhaps, a more striking instance of this than where we have in Flintshire an upper limestone of a somewhat hydraulic character, and a lower pale grey limestone; hitherto the latter has been found to be extremely poor in minerals, as compared with the dark upper one. I am speaking in these cases only of the mineral in the lode itself, and not of those disseminated in the rocks. Prof. Whitney, in his work on the "Metallic Wealth of the United States," mentions another striking case of this kind in connection with certain mines in the Western States, which some 30 or 40 years ago yielded large quantities of lead ore. The rocks here were chiefly masses of limestone, belonging to the Upper and Lower Silurian formations, where it was very noticeable that the result of experience was to show that only in certain bands could large deposits of ore be expected, and that the others were quite poor, or even sterile. The descending series of the rocks in this locality was—(1) Niagara limestone; (2) galena limestone; (3) blue limestone; (4) sandstone; (5) lower magnesian limestone. The Niagara rock belonged to the Upper Silurian, the others to the Lower Silurian formations. The first one contained no ore at all, then a bed of shale intervened, followed by the galena limestone, so called from the large occurrence of that mineral in it. This galena limestone was of a dolomitic character, a point worth noticing by the mining student, because dolomitic rocks are so frequently associated with this class of ores: in this case the rock runs from 200 to 300 ft. in thickness. The galena limestone was followed by a blue limestone, in which very faint traces of ore could be found, while in the sandstone succeeding no lead ore at all was met with. The bed below was of a very similar dolomitic character to the galena limestone, yet, strange to say, it contained no deposit of ore whatever; it rested, again, on beds of sandstone.

Another remarkable case is in the Lake Superior district, where the stratification of the rocks is more obscure. Thus, at Keweenaw Point, and some other places renowned for the production of native copper, the upper part of the ground consists of greenstone rock; next below that is a conglomerate, or ash bed; and below that an amygdaloid rock. The veins in passing through the greenstone are very sterile, in the ash bed they are very rich, while in the amygdaloid they are again poor, though that rock appears to exercise a favourable influence upon them.

I may remind you once more that whatever the rocks may be according to their composition, we have to look at something more—their physical condition. You may see, for instance, in the case of a dolomite such as that of which the Houses of Parliament are built that you may get in one part an extremely hard and durable building stone, whereas in an adjoining bed in the same quarry, or even in the same bed at some little distance, a stone which both chemists and geologists would call by the same name as the first kind, will be so friable as to be readily crumbled between the fingers. It appears that in the case of veins passing through rocks which vary much in their physical aspect, such variations have been due to long-continued chemical action, which has been accompanied by the filling of the veins.

It is important that the mining student should not be withheld by prejudice from paying attention to particular rocks. For instance, if it be said in Cornwall and Devon pretty largely that you would not expect to find ore of lead in sandstone, the chances are that sandstones are scarce in those districts; whereas in other districts you will find that lead ores do occur in sandstone. We must judge of these points on a larger scale, by visiting different districts, or by what we can get from the literature of the subject, than the man does who has studied only one set of mines. In Cornwall, taking the lead veins again, it will be held that if they pass into a hill they are not likely to do well; and, as miners say, the weight of the hill has been too much for them, and has squeezed the ore out. In other districts the opposite opinion holds good—that unless the vein has a sufficient amount of cover it is not likely to do well. Again, in some cases it may be held that soft rock is prejudicial to the probability of a vein turning out well, whereas now it is usually the case that they are associated with soft ground, in some cases so soft that extensive timber is required to prevent the walls falling in. Where the adjoining rocks are of a very dry soft character it is generally the case that what we called "horse" occurs in the vein, some part of the walls having fallen in, and the vein in general will be more or less flooky. With many English miners, again, it has been a matter of doubt whether lead ores would ever be found in granite, because they do not find them occurring so in the south-west districts; but there are districts in which lead has been worked, and worked successfully for many years, in granite—e.g., in Wicklow, and in the province of Jaen, in the South of Spain. There are, however, some conclusions which are so widely observed and so general that they cannot be too forcibly impressed upon us; as, for example, the great improbability of finding tin veins in calcareous rocks, a thing entirely unknown hitherto; whereas the great relationship of tin to the granite is a point noticeable not only in our south-west districts, but also observed in France, in North Bohemia, in Saxony, in Spain, and in Australia, and, fact, wherever the veins have been found.

It has been attempted to determine what is the quality of rocks which have proved most satisfactory as walls of the lodes, but I do not think any general results can be stated, except that rocks of a dark shaly character have in most districts been proved prejudicial to all ores, with the exception in some districts, perhaps, of ores of lead; but in the districts of Alston Moor and Yorkshire the rule holds good for those ores also. At Freiberg this question was made the subject of a very careful experiment, but, although they drew out a long list of rocks, I do not think any results can be obtained which have more than a local significance. In their list they placed simple clay-slate in the worst class, a kind of gneiss among the

average, and the best ore-bearing rocks were those where one vein is found passing through another, or passing through a material like those fahlbands of Norway. The miners in each district have generally a great experience in regard to the rocks of their particular district, and we can often obtain valuable information from them, to be checked, however, by wider experience of the phenomena of different districts. Not only have the surrounding rocks an influence on the vein, but in some cases the rocks are seen to be influenced by the vein—as, for example, in the walls of tin veins very frequently a large quantity of silica is found, which has, probably made its way from the vein by means of water. In some cases the substances introduced into the rock will be minute crystals of iron pyrites, or perhaps tin, so much so that the rock may be profitably worked to some distance from the vein. In the same way I have seen in Bohemia leaflets of native silver in the rock, at the distance of 6 in. to 1 ft. from the lode, to which distance the rock was being worked.

We must now give our attention to the relations of the lodes to the surface of the ground, and this is necessarily of high importance, because it is at the surface of the ground that we have to make our acquaintance with them. By the surface of the ground here I mean the surface of the rock, leaving aside for the present the difficulties arising from this being covered with gravel, sand, or vegetable mould. And the first point, of course, will be that of the bearing. In England the bearing in most cases is referred to the points of the compass, so many degrees, for example, east of north, &c., and almost invariably this is the magnetic north. We must bear in mind that the magnetic north is a variable direction; and, therefore, in dealing with old maps and plans unless we know the variation at the period these were constructed we cannot rely upon them. Moreover, it may be that in some cases great delays, disappointments, and even risks, may arise from this cause of the variation of the compass. In Germany, Norway, and some other countries, the old plan is adhered to of referring the bearing to a circle divided into hours, and thus a lode will be said to strike three, or to run from a certain point towards midnight, and so on. And in the hilly districts of Yorkshire the men talk of a vein dipping towards the two or three o'clock sun. The line where the lode intersects the surface of the ground is called its outcrop, or back, or basset; and this back may show at the surface as a series of cliffs, especially with large lodes, hence the term reefs given to them in Australia (an unfortunate term, by the way), and ledges in California. The question arises—Do all lodes make up to the surface or not? There are certain instances here and there (as at Foxdale, in the Isle of Man) in which lodes are not found at the surface, but are met with underground, and may then yield large quantities of ore. I cannot, however, undertake to vouch for their being carefully examined. I think it is a more likely case that such communication with the surface does exist, though it may be obscure, or in the form of small strings merely. We saw that veins varied considerably downwards, and we can conceive that such is the case here upwards. Some veins may run for great distances at the surface with great uniformity and boldness, others show very little at the surface compared with what may be found further down, and to this latter cause we must ascribe much of the slow progress of mining in many districts. The principal points of difference of the lodes in these respects depend upon certain changes, not only mechanical but chemical, which have taken place in them. In many districts it is notorious that none at all can be met with till you get down to a depth of 30 to 50 fms.—e.g., in Cornwall no copper ore of any note has been raised till 30 to 40 fms. was reached; and the great mine of Prizbram had to be sunk 20 to 30 fms. before it became productive, although the lode was large at the surface, but filled only with soft brown iron ore.

The lodes may be expected to exhibit these changes more or less, according to the following circumstances. If the lode contains much pyrites either iron, arsenical, or copper; if the lodes are large and jointed, and have large quantities of water passing through them (carrying, we must remember, carbonic acid along with it): if the rock at the sides is very porous; and if on the back of the lode you find bold rocks with cracks and fissures which allow the water to pass in—in other words, if you do not find the back of the lode covered with clayey soil—the probability in all these cases is that the lode will be found not in its original condition, but changed for a great way down, and only those minerals remaining which resist change by oxidation. On the other hand, if the lodes are small, and what the miner calls "tight," that is compact, the back without frequent fissures, and the surrounding rock of a similar character; if the surface be covered, especially by anything of a clayey character, it will not unfrequently be found that the lode may hold up to the surface, and you may find deposits of fresh and good ore even to the "grass roots." This may be seen in some of the lead mines of Cardiganshire and Montgomeryshire, and in Spain.

Ferruginous masses of red and brown tints have received attention from the miners of all countries, even from a very early period because they are found in many cases to cover the valuable deposits of ore below. Such a substance is termed by the Cornish miner gossan, and on the appearance of the gossan an experienced miner will be apt to judge of the probability of finding ore below—nay, more, he will undertake to distinguish different kinds of gossan which accompany the different ores. As a general rule, the miner prefers a dark gossan, with not too much quartz in it, but of a somewhat friable character. In the same way gossan is termed by the German miners *eisen Hut*, meaning the "iron hat," and by the French *chapeau en fer*. In some cases this gossan may be found to penetrate to great depths—40 to 50 fms.—and I have here a specimen taken from the extraordinary depth of 150 fms., and you will see it is suffused with red oxide of copper. Generally speaking the gossan decreases gradually as the ore increases; but in the case of the Great Devon Consols Mine (one set of workings of which ceased unsuccessfully in the gossan, the subsequent renewal has yielded vast quantities of ore) they came down suddenly on a mass of copper ore, 20 to 30 ft. in width. The gossan has not only to be studied on account of the ore to be expected beneath it, but it may often be found to be itself a useful material. Since, however, the surface changes I have spoken of—what were termed by Haidinger anogenic—are due principally to the influence of air and oxygen, we may expect to find in the gossan only those minerals which can resist such changes. In some cases, for example, it may be the precious metals, or silver ores, like the chloride or iodide, which we know to be the result of surface; or, again, tin ore, a very resisting material, is often worked in gossans, otherwise favourable, as in Cornwall. As an example of surface changes, we have the case where a lode shows brown iron ore at the surface, but at a depth of 20 to 30 fms. gradually changes to chalybite, and we have here a specimen of chalybite coated with

this brown iron ore. I would recommend my hearers to pay particular attention whenever they have opportunities of studying a carefully selected series of these gossans, as, for example, in the museum above; or, again, the fine collection in the public museum of the town of Truro.

## NOTES ON BROOMHILL WEST HARTLEY COLLIERY, NORTHUMBERLAND.

BROOMHILL COLLIERY, situated about three miles south-west of Warkworth Harbour, is now owned by Messrs. Hugh Andrews and John Sowerby, the former being the managing partner; Mr. A. Scott is resident viewer. The property is leased from—

- 1.—Earl Grey, the Broomhill Estate of ..... 1180 acres.
- 2.—Mr. Lawson, the Togston Estate of ..... 609 "
- 3.—Mr. Cresswell Creswell, the Hadston Estate of. 1800 "

Total..... 3589 "

That portion of the Northumberland coal field in which these properties are situated—that is, from the Hartley Collieries to the mouth of the River Coquet—has an average breadth of about four miles between the sea coast on the east and the outcrop of the coal measures on the west. Between the Hartley Collieries and Broomhill, a distance of about nine miles, there is some difficulty in identifying the regular steam coal series up to Broomhill, though there are several intervening collieries in that distance—Longhirst, Widdrington, Ashington, Stobswood, and Chevington; this is owing to the change in the quality and thickness of the coal beds, and from dislocations of the strata. It is probable, however, that the Low Main Seam of the Hartley District is identical with the Middle or Main Seam now worked at Broomhill Colliery. The coal seams found at Broomhill Pit are the following—

- 1.—The Top Seam ..... 4 ft. 6 in. thick, at 20 fms., including 4 in. of stone.
- 2.—Middle Seam ..... 6 3 " all good, at 33 fathoms.
- 3.—Bottom Seam ..... 3 0 " some grey coal in this, at 40 fms.

The fire-clay under No. 2 seam is now worked and manufactured into fire-bricks. The fire-clay under No. 3 seam is not worked, but it is known to be of the best quality. The working of coal, in fact, is confined to the middle seam, being of great thickness, producing a first-class steam coal, and for house purposes, though giving off white ash, burns remarkably clean and hot; on this account the other two seams are left for a future period. The coal field we are now describing belongs to the true coal measures, and must not be associated with the limestone, or lower coal series as they are called. These are worked at Framlington, Newton, and Shilbottle, about four miles westwards, and also at Scremerston and other pits near Berwick. In this series about 20 thin seams of coal are found, varying from 1 in. to 3 ft. 6 in. in thickness; the lower series of seams are more fully developed in the Glasgow coal field.

Broomhill Colliery was opened about 40 years ago, and for some time the coal was only landsale. The opening of the Newcastle and Berwick Railway in, and construction of a single line of railway from Warkworth Harbour to join the main line near Chevington, about five miles, gave increased facilities for the sale of coal. The colliery was then extended, and a large winding-engine erected at the present coal pit called No. 1. The No. 2 pit is 85 yards distant south-east from No. 1 pit, and is now used as the pumping shaft, and also in raising and lowering the workmen, and will ultimately be utilised in raising coal. The upcast or fan pit is 40 ft. distant from No. 1 pit.

MACHINERY.—The winding-engine at No. 1 pit has a 26-in. cylinder, 5-ft. stroke, lever-construction drum 10 ft. diameter, erected here 30 years ago by Coulthard, of Gateshead. It raises 700 tons on an average in 10 hours work, 800 tons is the maximum work at present, but the quantity is to be increased to 1000 tons per day in about 12 months. There are four cylindrical 5-ft. boilers here, varying in length; the steam pressure is about 35 lbs. A 4-in. horizontal cylinder engine is used for feeding these boilers, and may be used also as a fire-engine in case of need. About 12 yards from the top of this pit is placed an engine for underground hauling, by means of main and tail ropes, the ropes passing over one 6-ft. pulley at top and one 6-ft. pulley at the bottom of the pit. The engine has two 17-in. horizontal cylinders, close together, 28-in. stroke, spur-wheels in ratio of 1 to 3, two drums 5 ft. diameter; it hauls from four distinct stations in the mine, some of them more than 1 mile distant from the pit, hauls the wagons in both directions throughout; one portion of the road rises about 4 in. per yard inwards, where a drift has been driven from the lower to an upper seam, which necessitates the use of the brake when the train of full wagons is brought outwards in the drift. The ropes hitherto have been 3½-in. iron-wire, but steel ropes are being introduced, giving a lighter and more durable article. The electric signal is in use here; one battery is placed in the engine-house, two others are placed at two different stations underground. The advantages of this mode of signalling over the ordinary rapping and rope are instantaneous communication, and no liability to derangement so long as the batteries are properly charged. The cost of the whole apparatus is under 30.

The colliery is ventilated by means of a Guibal fan 24 ft. in diameter and 8 ft. broad, driven by a 20-in. horizontal engine 18-in. stroke, making 60 strokes per minute in the day time, and about 50 strokes at night, the maximum amount of air drawn into the mine being about 40,000 cubic feet per minute. A duplicate engine is placed on the other side of the fan shaft, the engines being applied alternately in driving the fan. The engines and fan are the make of James Nelson, engineer, Sunderland. The difference in the air pressure is 7-10ths of an inch of water.

At the No. 2 pit, a horizontal pumping-engine was erected by J. and G. Joicey, engineers, Newcastle, in 1866, of 36-in. cylinder, 5-ft. stroke, direct-acting to two quadrants placed over the pit. From the pit-end of each quadrant is worked a bucket lift of pumpa 19 in. diameter, 4 ft. 1 in. in stroke, and 43-fathoms lift each from bottom to the surface; the engine requires to make 6½ strokes per minute, day and night, to raise the water flowing into various parts of the mine. The quantity of water thus raised is 650 gallons per minute, equal to 390,000 gallons in 10 hours. This is considerably more than double the weight of coal raised in the same time; but the working power of this powerful pumping-engine is equal to 1800 gallons per minute; there is consequently a great reserve force at command if ever required. A winding-engine is placed at the top of No. 2 pit, [as before observed, for changing the workmen. It has two 14-in. horizontal cylinders, 20-in. stroke, direct-acting; drum 5 ft. in diameter, placed between the cranks. This was also made by J. and G. Joicey, in 1865. The six boilers are placed near to these engines; five of them are 5-ft. cylindrical boilers, one a two-flued "Galloway" boiler. These are fed by an injector, or by a 5-in. horizontal engine in case of need. The boilers are connected with those at No. 1 pit by a large steam-pipe. The boilers and steam-pipes are covered with a non-conducting composition. The water used being impure and leaving sediment in the boilers, a chemical composition is constantly used in order to prevent hard incrustation on the interior.

The Togston Pit, also on the Broomhill property, is about ¼ mile north of No. 1 pit, and has apparently been an old landsale colliery. The winding-engine at this pit has a 16-inch cylinder, 5½-ft. stroke, of the lever construction. By a combination of machinery this engine is made to perform two operations—first, to raise water from a dip in the 6-ft. seam by means of a beam, two ropes in the pit, and bell cranks at the bottom. These work a 6½-in. double-acting pump, forcing water to the top of the dip; the water afterwards runs to the main pumping-engine. It also raises coal up another dip, which is afterwards run to No. 1 pit by a self-acting incline. No coal has been raised at Togston pit for many years.

BROOMHILL UNDERGROUND WORKINGS.—The middle, or main seam, is worked on the bord and pillar system—long wall work is not in practice. As inflammable gas is not produced in this seam candles are used solely in the mine. Carbonic acid gas is produced to a trifling extent, but this is counteracted by having good currents of air in circulation: 442 men and boys are employed underground, and 70 horses are used in bringing coal to the engine-plane. The

workings of the middle seam are of great extent, and a large area is laid down as goaf. The workings of the other two seams are of limited extent, and are held back for operations in future years. To the south of the pit a fault or nip-out occurs in the middle seam; the roof and floor close together, and coal is altogether absent for a breadth of from 400 to 500 yards; beyond this the coal appears again in its usual form and thickness; otherwise the mine is not subject to many faults. The coal measures lie in the form of undulations, the rise ultimately being to the north-west a little.

The surface upwards of 100 men and boys are employed. The colliery buildings consist of stables, storehouses, and joiners' and smiths' shops. The smiths' shop contains eight fires; these are blown by a Schiele's silent fan, actuated by an 8-in. horizontal engine; this engine also drives a 12-in. screw-cutting lathe, a screwing machine, and vertical drill when required; these have been found very useful tools on the colliery. Behind the shops is a saw-mill, driven by a 15-in. cylinder horizontal engine, 18-in. stroke, and high-pressure boiler. The same engine drives a mill for crushing oats, beans, Indian corn, &c.; these mixed, together with hay, are the regular feed for the horses.

The machinery of the brickworks is driven by a 12-in. beam engine, 5-ft. stroke, and small boiler at 30 lbs. pressure. The bricks are moulded and pressed by Scholefield's patent machine, which makes about 4000 bricks per day at present, but is capable of making 7000 per day. The ground and sifted fire-clay is only slightly damped before it is delivered to the machine, so that when moulded and pressed the bricks are carried direct to the kilns for burning, without the drying process.

A gas-house containing nine retorts supplies gas to the pits and screens, workshops, and agents' houses. It is also taken down No. 1 pit by pressure for lighting the underground stables and the engine roads for a length of 150 yards from the pit.

There are 206 workmen's houses belonging to the owners of the colliery, and 76 others rented from different persons. The workmen seemed to be well cared for here; the houses are fitted with every convenience, and have gardens attached to them. They have houses and coal free, making good wages besides.

A school board has lately been appointed here, and school buildings have been erected, at a cost of £2700, which will accommodate 350 boys and girls. The desire of the owners is evidently to make Broomhill a model colliery in all respects.

The coal from Broomhill Colliery is shipped chiefly at Warkworth Harbour, close to the pits. A steam dredger has recently been obtained, and is now in operation in deepening the shipping places and the harbour generally. Vessels of 600 tons can now go out to sea in ordinary tides. The owners of Broomhill Colliery are also proprietors of the harbour of Warkworth, which may be considered part and parcel of the colliery. The colliery is, therefore, placed in an exceptionally advantageous position, as its close proximity to a good and commodious harbour enables the owners to ship their coal there at very small expense. No colliery under the circumstances can compete with them. The Broomhill owners have also an arrangement with the North-Eastern Railway Company for the loading of their coal to Tyne Dock and Sunderland, and ships can thus load with Broomhill coal on the Tyne and at Sunderland on the same terms as other first-class collieries supply their coal.

Subjoined is an analysis of Broomhill West Hartley coal, made by Mr. John Pattinson, analytical chemist:

Carbon	74.94 per cent.
Hydrogen	5.05 "
Nitrogen	.91 "
Oxygen	12.27 "
Sulphur	.90 "
Ash	1.08 "
Moisture	4.85 " = 100.00

**THE POST OFFICE LONDON DIRECTORY.**—Once more we have to notice the issue of the, to business men at least, indispensable volume—the Post Office London Directory—and the 77th annual edition is certainly not a whit behind any of its predecessors. The Law Directory contains much that is useful, not only to the professional man but to the public generally, all the alterations necessary through the establishment of the Supreme Court of Judicature have been carefully made, and map of the metropolis, always an important feature in the Directory, has been much improved. With regard to the map, it is this year constructed upon the principal so common in German guide books, and which proved so useful to visitors at the last Vienna Exhibition. A series of vertical and horizontal lines cuts the entire map into small segments half-a-mile square, the segments being lettered horizontally and numbered vertically. The advantage of this arrangement is obvious—the most unimportant place can be instantly found, and the shortest route to it from any given point as quickly determined. Say, for example, that the exact locality of Pemberton-row, City, is required, one who has never before been in London will find by reference to the Street Directory that its position on the map is "M. 9." Then, following the vertical series of squares downward until the horizontal line marked 9 is reached, a 1/2-in. square is reached, within which "Pemberton-row" is found. As the sides of the squares are exact half miles, and the diagonals consequently nearly 1/4 mile, the approximate distance between any two points can be very conveniently and readily ascertained. So much care is always given to the correction of the Directory to the latest possible date; that it is scarcely necessary to test the accuracy by reference to recent changes, yet upon doing so it is found that Sir Trevor Lawrence is correctly described as M.P. for Mid-Surrey, although only gazetted on Nov. 26. Sir John Holker and Sir Hardinge Giffard appointed Attorney and Solicitor Generals on the same day are referred to by their new title throughout the volume. The new Commission of Lieutenancy for London is inserted, and the appointment of the Right Hon. Sir Seymour Fitzgerald as Chief Charity Commissioner, and of the Right Hon. Cavendish Bentinck, Judge Advocate General, as Privy Councillor, both made on Nov. 30, are duly made in the Official and Parliamentary. The new names given during the year by the Metropolitan Board of Works to 27 streets, and the re-numbering of 53 others, have necessitated numerous corrections, which have been carefully made, and 72 new names of streets are introduced. The work fully maintains its reputation for accuracy and completeness, and is in every respect worthy of a continuance of the patronage which it has so long enjoyed.

**COUNTY TOPOGRAPHIES.**—Three more of the very interesting little volumes edited by Mr. E. R. Kelly, M.A., of the Post Office London Directory, have just been issued—Cambridge, Norfolk, and Suffolk—and will not fail to be appreciated, not only in the counties to which they relate, but throughout the country. The Topography of Cambridgeshire, although somewhat smaller than the rest, will prove especially attractive, since it contains an excellent account of the town of Cambridge, and a concise, yet accurate, history of the University. Mr. Kelley is performing a very useful and important service in placing such valuable topographical matter so readily within the reach of all.

**PURIFICATION OF GAS.**—The invention of Mr. G. T. Livesey, of the South Metropolitan Gasworks, Old Kent-road, has reference to apparatus by the employment of which the ammonia and other impurities contained in crude gas may be more effectually removed, and the resulting liquor enhanced in value; and consists in the construction and use of one or more oblong, square, or other suitably shaped but somewhat shallow boxes, chambers, or vessels, each divided by a number of vertical partitions, the lower part of the sides of which are bent or curved so as to recede from each other, though they may be left vertical, the ends being closed. The curved or lower part of each partition is perforated with a great number of small holes; and between every alternate partition, a horizontal plate, also pierced with fine holes, is fixed to the said partitions. It is preferred that two or more of these boxes, chambers, or vessels, technically called "washers," shall be placed side by side at different elevations, so that the liquid supplied to the highest vessel may by a suitable pipe, flow to the next lower one, and from that to the next, and so on. Each vessel being supplied with either water, ammoniacal liquor, or other suitable liquid, the gas is admitted to the lowest vessel, when it descends between the partitions before

spoken of, depresses the liquid contained therein, and escapes through the perforations in the sides into the spaces covered by the horizontal plates. The gas then passes through the liquid and the apertures in the horizontal plates, and emerges into the space above, from whence it proceeds by means of a suitable channel and pipes to the next vessel above, where the operation is repeated.

#### MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers) Pinner's Hall, Old Broad-street, write to us as follows:—

**EBERHARDT AND AURORA (Silver).**—When Francis Drake left the board of directors to undertake the direct personal management of these mines, and Edward Applegarth occupied his position as a director on this side, we foresaw (and expressed an opinion accordingly) that Eberhardt and Aurora had entered upon a new and successful era. Sheer and culpable mismanagement had brought a valuable property to the very threshold of bankruptcy, and its shareholders to a condition of hopeless despair. Had it not been for the unabated confidence Francis Drake and Edward Applegarth had in the mines they had vended to the company neither would have accepted such a responsible position, nor undertaken the onerous, and almost overwhelming, task of lifting the property out of a state of utter discredit, placing it at least upon a respectable and creditable footing. That this task has been most perfectly and satisfactorily accomplished must be unequivocally admitted even by those who strenuously opposed a change of management. Surely no supporter of the former administration will now attempt to gainsay the fact that it is a substantial proof of the producing powers of these mines, no less than a convincing testimony of the efficiency of the management, in 36 days there has been earned a net profit of £14,000. by an expenditure of £6000. This large proportion of profit as against outlay is only an earnest of the results likely to be realised by the essentially miner-like manner in which the property has been opened out under the control of Francis Drake, who, we are free to confess, has been from time to time singularly encouraged by valuable discoveries. Heavy deadwork expenses have been incurred for a long time past, the permanent advantage is now accruing. Our favourable opinion of the improved *regime* initiated by Francis Drake was confirmed by a perusal of the well-considered report which that gentleman furnished to the shareholders at the beginning of the present year. In that report nothing but bald facts were put forward; after describing the financial position of the company, and suggesting remedial measures, it stated that "The estimate was in his judgment not only a safe one in so far as related to the value of the ore-product, but also a liberal one as to the expenditure, and it was fair to presume that the status of self-sustaining would have at last been reached, and that the cry for dividends in the future would be appeased."

Shortly after this we wrote thus:—"The advices from the mines, especially from our own private sources, show their increasing value, and the monthly profits would soon place it on a sound dividend-paying basis. Since January the indebtedness of £24,000. has been liquidated, and by this time there is in hand something like £10,000. The theory as to the superficiality of the ore deposits in the White Pine district has been altogether dissipated by the results attending the development of these mines. At a depth of 400 ft. ore is being produced in considerable abundance, of an average grade of \$60 per ton. When it is remembered that at the formation of the company its remunerative success was based upon an average grade of ore of \$40 per ton, and that its present average grade is nearer \$60, it does not require a prophet to foretell the results that will arise, and the consequent advance in market value. Suffice it to say, that with a prospect of obtaining a \$40 ore the market price of the shares advanced to 30%, and that now, with a higher grade ore, improved management, profits of between £6000. and £7000. monthly, with the mines continuously improving, the market price of the shares is little above 6%; this should be a profitable hint." The above remarks now speak for themselves. At the meeting, on Monday, the Chairman omitted to refer to two most material points in connection with the intelligence we referred to last week, relating to the recent discovery. This discovery is made in the North Aurora Mine towards Ward Beecher; prospectively this discovery may prove of much greater importance and value than at present indicated, remembering that the Ladies' Chamber, in the Ward Beecher Mine, could not have yielded less than between 25,000 and 30,000 tons of ore, averaging, probably, about \$50 per ton. It seems not unlikely that this new discovery may lead to the opening out of a similar chamber, in which case there may again be as great excitement in the shares as when the Ladies' Chamber was first opened.

Hence we find the statement of the inspecting director pregnant with meaning when he says that the so-called chambers in North Aurora and Ward Beecher (which although two contiguous mines may be regarded as one) may have given the impression that they are detached "pockets," and the mine, in consequence, uncertain and "bunchy;" this (adds Mr. Wild) has not been the case, for the ore has been true to its bearings, and faithful to its wall, which, in the great Treasure Hill, runs north and south, and therefore at right angles to the direction of a similar wall which governs the Eberhardt deposit. That there may be further discoveries of equally valuable ground on the same level it is only natural to expect; and Capt. Drake, who from his long practical experience of the strata he is working in, and his thorough capacity as a miner, is a far better judge of the chances before him than any stranger to the district can possibly be, entertains a hope of being able to find a continuation of ore of the richest chambers in the portion of the mine now being explored to the north, but the vitality of the mine cannot be allowed to rest on this prospect. There has been produced from this almost superficial working a great deal more value than is ordinarily the case—up to date £466,000.; chief regard, therefore, must now be paid to what is below. Another point to which the Chairman did not refer was the relative value of milling and smelting ore. It may be useful to mention that milling ore, however rich, can be mined and milled at a cost of £25 per ton, whereas smelting ore costs something approaching double that amount for mining and smelting. This is a consideration that never should be lost sight of in estimating the investing value of a mine yielding a milling as compared with a smelting ore. Taking the net profit at £10,000. per month, the divisible amount per annum will be realised of £120,000.; this, upon a capital of £255,000. (including the issue of 2000 shares in cancellation of debentures), is equal to nearly 50 per cent.

**RICHMOND CONSOLIDATED (Silver).**—The report of the directors caused a decline in the price of the shares. Disappointment was felt at the further delay in the declaration of a dividend, and also at the absence of any specific statement as to the condition of the bullion agent's account, nor is any mention made as to the reserves of ore in the mine.

**ST. JOHN DEL REY (Gold).**—The announcement we made many weeks since that the dividend would be at the rate of 25 per cent. per annum for the half-year (50 per cent. per annum) has been officially confirmed. The profits now exceed £15,000. per month, and we look for a yet further increase for some time to come, from an increased yield of gold per ton, and extended facilities for reduction purposes.

**PATELEY BRIDGE LEAD AND SMELTING.**—Further improvements are officially announced this week. The "new discovery" is yielding in the stopes in the back 25 cwt. of lead per fathom; eastward, in the cross-cut north, the vein is temporarily disordered by a cross-course, but will, as usual, resume its former value so soon as the end is driven out of the influence of the disturbing cause. The Gulf vein, 8 ft. wide, is producing 25 cwt. of lead per fathom. Shortly the 20 will be extended wider to open out this vein, when large quantities of ore will be raised at a small cost. Westward the vein continues to improve, the bearing part being no less than 3 ft. wide, producing strong lead ore. Referring to this point, the manager says—"The vein looks very promising, and I expect soon to open out here a good deposit of ore." Pringap vein, the importance of which we have fully adverted to heretofore, is improving; it is 6 ft. wide, producing fine quality ore in paying quantities. Blue Rigg vein is 4 ft. wide, and yielding fair quantities of good ore. The

smelting furnaces are constantly employed, and the ore is yielding 75 per cent. of lead. These facts show that the mine generally is developing in a most encouraging manner.

**ARGENTINE (Gold).**—There is nothing new to report from these mines. Purchases continue to be made in expectation of favourable advices being received by the next mail.

**HYDRAULIC GOLD MINING.**—Thus far we have shown that all gravel deposits are accessible, no matter at what elevation they are found, and that the production of gold will keep pace with the development of other great industries. The whole process of hydraulic mining tends to remove mountains of auriferous gravel deposits from their natural position, and so transfer their bulk to the valleys below. We have more than once stated that the three great principal requisites of successful hydraulic gold mining are—1. A gold-bearing gravel deposit.—2. Not less important than the preceding—facilities for deposition of tailings.—3. An abundant and permanent supply of water for mining and other purposes. The deep gravel deposits of California occur in basins, channels, or river beds, differing in depth, width, and length, like the living streams, ponds, or lakes of the present day. The deposits themselves, consisting of gravel, drift, or shingle, sand, and clay, differing in size of boulders and compactness of the various stratifications, as well as in their composite parts; they consist of the *detritus* of all classes of rocks known in California, and have received evidently their gold from the quartz, which appears either in boulders and pebbles or in sand throughout these immense deposits. The great and noted channels containing these deposits run from north to south, and are indicated by gravel ridges and table lands, the latter very often covered with lava, basalt, or other volcanic matter, such as ashes and scoria. Springs inside of the rim-rock are sure indications of a deep channel or basin; the rim-rock—or, in other words, the shores or banks of the ancient stream—must once upon a time have been high enough to confine the gravel deposits within their limits. For instance, a gravel deposit appearing to-day in the shape of table mountains, must have gained its present form only through the agency of water, which destroyed portions of the rim-rock and gravel deposits. The cause which partly destroyed the rim-rock or shore of the channel, and left high plateaus or table mountains as isolated landmarks of the ancient gravel stream, has undoubtedly to a certain extent obliterated every surface indication of the existence of such a gravel deposit.

**STOCK EXCHANGE GENERAL MARKETS.**—Now that the public mind is in a frame for discussion we may revert to the opinion we expressed more than once during the recent panic—that Foreign Government Securities would again come into favour. For no other object than to prevent an indiscriminate reaction, which will confuse bad foreign securities with the good, it may be useful now to mention that nothing will more clearly show how illegitimate was the credit formerly obtained by certain foreign securities whose collapse brought discredit on the whole class. A national loan is a good investment, because in civilised States no other income is so well secured to the investor as that derived from a loan to a Government; a Government, in making a loan, pledges the whole income of the community which it represents. The loan is the first charge after the ordinary expenses of administration of the Government itself, upon the income of every individual in the community, and up to the limit of the taxable resources of the community the charge of that loan will be paid. The credit of powerful States has not been obtained without long experience of the magnitude of the emergencies under which the best nations keep faith. England, during the war at the beginning of the present century, when the taxation raised was 7s. 6d. per £1. on the income of the community; France, during invasions like those of 1870-1, and during revolutionary periods like 1848; Russia, paying the interest on its loans, mostly held by the subjects of some one of its enemies, during the Crimean War; and the United States during the Civil War are all conspicuous instances of great national emergencies in which public faith has been fully kept.

Hardly any income derived from private sources can have such safeguards, and accordingly the first securities in every civilised State are the loans of its Government. Such securities have also all the advantages of the best leading securities dealt in on the Stock Exchange; they are in great masses, constantly a steady market. They are also highly suitable for international dealings, as a security emanating from a particular country is likely to be as well known internationally as the obligations of that country itself. True, nations are liable to great disasters, causing immense fluctuations in the market value of their securities, although the income may remain safe, but we doubt if the fluctuations are ever so great, at least when serious disasters are in question and minor affairs are unimportant, as they would be at the same time in all the Stock Exchange securities of the country in question. As to Turkish bonds, after the political complications shall have been removed, there is no doubt that the public debt can be readily provided for on the decree plan. At the recent and almost the present prices, Turkish bonds will pay 10 per cent. in cash alone, in addition to 10 per cent. in bonds, which are to be redeemed in five years, in the meantime bearing 5 per cent. interest. If there be any prospect of these terms being kept, as now seems probable, there has seldom been such an opening for Stock Exchange operations.

#### FOREIGN MINING AND METALLURGY.

Recent cold weather has somewhat increased the demand for coal in Belgium. Many purchasers, compelled suddenly to lay in their supplies, have found some difficulty in obtaining what they required all at once; and it has been once more shown that the railway companies have an insufficient stock of plant for any period of pressure. There has been some revival in the demand for industrial qualities of coal in the Liège basin; some collieries are overdone with orders for the present, and a rather important demand has been noticed on Dutch account. Prices have, however, remained stationary. In the Charleroi district the canals became frozen during the recent severe weather, and some delays and difficulties arose in consequence. In the Coucheant de Mons prices have been firmly maintained. Several collieries in the Borinage which have not been well supplied with railway communication have been compelled to form stocks, which are expected, however, to be rapidly disposed of. Doubts are entertained whether the present comparative activity in the Belgian coal trade will last all through the winter.

In the French iron trade the state of affairs has experienced little change. No improvement appears in the least degree likely before the close of the now fast dying year. The Graissessac Tour United Mines Company has announced a distribution of 17. 4s. per share, forming the balance of the dividend for 1874-5. The Pontgibaud Mines Company has also announced a dividend of 17. 16s. per share in respect to its financial year 1874-5; of this dividend 12s. per share was, however, distributed in June. Recent cold weather occasioned an upward tendency in the price of coal at Paris, but this upward movement has been promptly checked by the return of a comparatively mild season. In the basin of the Loire the coal trade presents a quiet tone. The basin of the Loire still remains, it may be observed, a local market to a great extent, notwithstanding the vast development of the Paris, Lyons, and Mediterranean Railway, and the completion of the Mont Cenis Tunnel. In the basin of the Loire prices remain stationary, notwithstanding the obstinate efforts made to secure an advance; if anything, the tendency has been rather downwards than otherwise.

Copper has not been very actively dealt in upon the continental markets. Quotations have ruled feeble at Paris, and business has left a good deal to be desired. Chilean (in bars) delivered at Havre, has made 85. 4s.; ditto, ordinary descriptions, 84.; ditto in ingots, 87. 4s.; English tough cake, 87.; and pure Corocoro minerals, 84. per ton. The Marseilles copper market remains without variation; red Toko has made 84. In Germany, transactions in copper have not experienced much change; transactions are confined to the most urgent requirements of consumption. There has been little business passing in tin at Paris, and quotations have been rather dropping. Banca, delivered at Havre or Paris, has made 90. 8s.; Straits, ditto, 87.; and English, delivered at Havre or Rouen, 86. per ton. The tone of the Dutch tin markets has not varied. Banca has ranged

from 50 fl. to 50 fl., while Billiston has brought 49 fl. The amount of business passing has been of no great importance. The German tin markets have been feeble. Lead has been well supported at Paris, but there has been an absence of important transactions. French, Belgian, and German lead, delivered at Paris, has brought 22, 12s. per ton; and lead from other sources, delivered at Havre, 22, 8s. per ton. The German lead markets have remained firm. Zinc has ruled very firm at Paris. At Marseilles, rolled Veille-Montagne has made 34s. per ton. Some rather important transactions are stated to have been concluded in zinc in Germany, and prices have been advancing.

Some discussion is taking place among German ironmasters with reference to the abolition of the Customs' duties imposed on iron admitted into the German empire. Considerable stagnation continues to prevail in the Belgian iron trade, and no new orders of any importance are now anticipated until the commencement of the new year. The position of some of the less favoured Belgian establishments begins to occasion a good deal of uneasiness. Steel moves on a little less badly than iron, but the competition which now prevails between steel-producing countries renders steel transactions very difficult upon foreign markets. The production of steel has now attained quite a colossal importance, and considerably exceeds the requirements of current consumption. The *Moniteur des Intérêts Matériels* has made a calculation, from which it appears that Great Britain has now 21 Bessemer steelworks, with 105 converters; Prussia 14, with 61 converters; Austria 12, with 30 converters; Bavaria 2, with 4 converters; Saxony 1, with 4 converters; Alsace 1, with 2 converters; France 8, with 25 converters; and the United States 8, with 16 converters. These totals make up an aggregate of 67 works, with 247 converters, representing an annual productive power of 2,460,000 tons. M. Raze, engineer-in-chief of the Ougrée Ironworks, has published a note on the Pernot furnace. The first furnace on this system constructed in Belgium was in the model establishment, under the direction of M. Mockel; the second was brought into operation at the works of MM. Victor Gillieaux and Co., of Charleroi. The practical results reported by M. Raze in connection with the furnace are of some interest. M. Raze shows that the waste in puddling is 4 per cent. less than by the ordinary manual process, and that the consumption of coal is reduced to 4 cwt. per ton of iron obtained. The regularity of the products leaves nothing to be desired. The Ougrée Collieries and Blast-Furnaces Company will pay, Jan. 3, a dividend for 1874-75 at the rate of 12s. per share.

### Meetings of Public Companies.

#### NEW PACIFIC MINING COMPANY.

The annual meeting of shareholders was held yesterday (Friday), at the offices, Austinfriars.—Mr. J. J. COURTEENAY in the chair.

The notice of the meeting having been read,

The CHAIRMAN stated that the mine was leased to tributaries until May. These tributaries were merely paying their way, but as yet had not discovered anything; under the circumstances, therefore, he had but little to say, and would propose that the accounts as circulated be adopted. This was unanimously agreed to, as was also the resolution re-electing the retiring directors—Messrs. G. Batters and C. Curtis, and the auditors, Messrs. Good and Co., were also re-elected.

A cordial vote of thanks was given to the Chairman and directors for their attention to the interests of the company, and the meeting separated.

#### THE BREMER MINING COMPANY.

A general meeting of shareholders was held at the City Terminus Hotel, on Wednesday.—Mr. WM. PATERSON in the chair.

Mr. W. H. WYON (the secretary) read the notice convening the meeting.

The report of the directors stated that they gave due effect to the resolutions passed at two extraordinary general meetings held on Aug. 3 and 4 last. Instructions were forthwith sent to Adelaide for all ore readily obtainable to be at once raised, and then that the working of the mine was to cease. All materials of value were to be brought to the surface for the purpose of realisation. Advices have been received from Mr. Alfred Hallett, dated Oct. 8, informing the directors that the ore at grass was valued at 1200t., which he was about to have smelted, and that all machinery and realisable materials will be sold to the best advantage. The directors propose that the land of the company shall be dealt with after it has been carefully valued by competent authorities. In the meantime, instructions have been sent authorising the reception of offers; and the co-operation of two influential gentlemen in Adelaide has been obtained, to whom reference may be made before any sale is absolutely concluded. The directors regret that the balance-sheet shows worse results than on any previous occasion. The increased loss, however, proves that the time had fully arrived for terminating all mining operations, as the ore continued to be of an unremunerative character.

The CHAIRMAN was sorry the board were compelled to submit such an unsatisfactory report. At the last meeting it was hoped the mine would improve, and that they would see some return, but instead of the ore improving in richness, he was afraid it had rather become worse, which had added greatly to their misfortunes, and of course had necessitated the carrying out immediately the resolution of the extraordinary meeting to close the operations at the mine. They had worked the mine for some years; their first experience was that when unwatered, the iron fixtures and appliances were highly stained with copper. Ore was raised, but the crusher they were sold was inadequate, and that another must be provided. Accordingly, Hancock's patent crusher was purchased and erected; incurring a considerable outlay; then they were told there was difficulty in obtaining skilled labour, but that it would be overcome, and that large and valuable returns would be made. Everything that could be had been done for the development of the mine, but the stumbling-block had been its poverty itself. From the first they had been led by the report of Mr. Alfred Hallett, their manager, who held 100 shares in the company, and he had constantly buoyed them up with the prospects of better returns. He (the Chairman) did not think they had closed the operations a day too soon. The ore returned had not averaged more than 2 or 3 per cent. of copper, and the shareholders had acted wisely in not continuing such a work. The financial position of the company was worse than at the last meeting, and it was evident a call must be made of probably 17 per share; they might then calculate the property in Australia would liquidate the balance if judiciously managed. The Worthing property had an extensive surface of 1400 acres, which might be sold for farming irrespective of the value attaching to the mine, but at Bremen there was merely the mine to deal with. Information had been received that an offer might be made for the mine by the miners for its purchase. Mr. Hallett tells them that the machinery, if sold, would realise the price only of old iron, although it had cost the company many thousand pounds. He then moved that the report and accounts be received and adopted.

Mr. ALEXANDER MORRISON asked the reason Mr. Cyrus Legge had retired from the board? He drew attention to the statement in the Adelaide papers that the company was selling off the materials below their value.

The CHAIRMAN said there was no advice whatever of any machinery having yet been sold. As to Mr. Legge, the directors were extremely reluctant to lose him as a colleague, and they had not accepted his resignation.

Mr. CYRUS LEGGE said he had left the direction because it was not consistent with his own feelings to remain longer on it. He had been as anxious for the interests of the company as anyone. The Chairman had said the Worthing property consisted of 14,000 acres; the Worthing itself was only 880 acres, but there was another section of 80 acres, the Bremer and Wheal Maria properties consisting of 580 acres, making in all 1500 acres. He was glad to hear the miners were disposed to form a company amongst themselves to work the mine; there is no doubt if they did so the loss to this company would be much less, and, moreover, if the miners had that confidence, it showed that the mine was worthy what had been said of it. He had no hesitation in saying if the whole of the capital had been called up in the first instance the company would not now be in its present position, and he should have been quite prepared to subscribe more capital, although he was already as large a holder as any director.

Mr. MORRISON said that Mr. Legge got his debt by selling the property to this company for 12,000t.

Mr. LEGGE said the amount due to him from the late company he would have received whether the property had been sold to this company or not. If the company's land were sold it would no doubt realise a very considerable sum. He was quite prepared to bear any responsibility attaching to the board, although he had resigned.

Mr. MORRISON said he had been induced to take an interest in the company from the various representations in the prospectus stating the acreage, and that a portion was bringing in about 200t. a year, and that there were also mineral rights with reserves of ore of some 7000 tons of 10 to 11 per cent. He believed if the company were taken before the Court of Chancery the shareholders would recover their money.

Mr. LEGGE said there was no doubt the old Worthing Company owed the bank and directors 11,500t.; this company took over that property for its liabilities.

Mr. PURDAY confirmed Mr. Legge's statement; about the same amount remained due now, as proved by the present accounts.

The CHAIRMAN said they were all in the same boat; they had gone into a specu-

lation, and it had turned out a bad one; the ore instead of improving in quality had deteriorated. The directors would do the best they could with the property.

After some further discussion, the report and accounts were received and adopted, and the Chairman announced it was the intention of the board to make a call of 17 per share.

A vote of thanks was passed to the Chairman and directors.

#### UTAH SILVER-LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held yesterday, at the offices of the company, Austinfriars (Mr. GEORGE BATTERS in the chair), to receive and consider Mr. Roberts's report upon the property, and also for the purpose of considering the present position of the company; and, if deemed advisable, passing an extraordinary resolution, in accordance with the third sub-section of section 129 of the Companies Act, 1862, to the effect—

"That it has been proved to the satisfaction of the company that the company cannot, by reason of its liabilities, continue its business, and that it is advisable to wind up the same, and that the Utah Silver-Lead Mining Company (Limited) be wound up voluntarily, under the provisions of the Companies Acts, 1862 and 1867."

The CHAIRMAN said the shareholders would remember that at the last meeting a strong desire was manifested that an independent report should be obtained regarding the value of the property, and a gentleman was named for that purpose who was known to Mr. Applegarth—Mr. Roberts, who was a man of considerable repute in the district. Since that meeting letters had been received from the agent in charge, Mr. Argoll. With respect to the finances of the company, no material change had taken place since the last meeting; that was to say, the company owed little and had but little or no money. About 200t. of profit had been made on the working, which he presumed had been used out there to liquidate claims, if any existed. He read the letter from Mr. Argoll, which referred to one or two very small liabilities over in Utah, and which went on to say that, with regard to the future of the mine, the only chance was to sink a shaft and get the ore below the pyrites, or else to give up the mine. He then read the letter of Mr. Roberts, which was as follows:

*November City, Tuesday, Nov. 2.—On the 26th of last month examined the mine at Bingham canyon, as per request of Mr. Applegarth. Seen and examined all the workings, and can come to but one conclusion, which is that the whole matter has been misappropriated as to value and quantities. Judging from openings, there never could have been ore of sufficient grade to have warranted any machinery whatever. Sorting the ore could have been easily done by hand, as the different colours readily define their values. I think by exploring further in main mounain at drainage, there will be found chimneys of ore of value—lead to a point which would determine if there is a mine of value or not. This could be cheaply done.*

W. R. LAVINGTON, Esq., London.

The CHAIRMAN went on to say that he had now read the letter of Mr. Engoll, and the report of Mr. Roberts, and it was now for the shareholders to decide what course they should pursue—whether they would discuss the report, or whether they would pass at once to the special meeting, and resolve to wind up the company. The whole subject had had the most careful consideration of the directors, but they wished to be guided fully by the opinions and wishes of shareholders.

Mr. APPLEGARTH said he must confess he was considerably disappointed at the shortness of Mr. Roberts's report; he certainly thought Mr. Roberts would have sent a longer report. At the same time they would have gathered from the report that there was only one thing which Mr. Roberts could recommend, and that was to drive into the hill, and see if better results could not be obtained.

Mr. BURNAND asked where the money was to come from, even supposing they decided to drive into the hill?

Mr. WALKER: What money have you in hand?—The CHAIRMAN: Nothing. Apparently we have no money, and apparently we owe nothing.

Mr. JOHN CARR said there are some unpaid calls?—The CHAIRMAN said there were, 386t., but it was possible there would be some set off against that for expenses. There was 338t. utterly bad; there was 66t. in Ireland, and 18t. in Scotland.

The CHAIRMAN, in answer to a shareholder, said that Mr. Argoll was simply sent out as cashier and clerk, and not as manager.

Mr. APPLEGARTH said that, from the look of things, it seemed that the ore had been worked by Mr. Argoll upon tribute—that was to say, that he got one-fourth for the company, and three-fourths went to the miners.

Mr. T. G. TAYLOR, after referring to the high price to which the shares originally went in the market, went on to say that he had a letter from Mr. Meyer, who stated he was confident it could be made a paying mine, and offering to thoroughly examine the mine for 50t. (a laugh)—and further offering to take charge of the mine for 1200t. a year. (A laugh.) Well, at any rate if it was not advisable to accept the offer, perhaps it would be advisable to see whether Mr. Meyer would make an offer for the mine.

The CHAIRMAN said that no doubt buyers could be found for the property and machinery. There was no doubt that this company had been the victim of as gross a "folly" as had ever taken place in connection with mining.

Mr. BURNAND, in reply to a question, said that Mr. Longmaid stated he was coming home here to challenge the board in regard to certain statements which had been made, but he had never yet put in an appearance.

The CHAIRMAN said he really thought it was no use for the shareholders to throw good money after bad.

Mr. WALKER asked what it would cost to drive into the mountain in the way referred to by Mr. Roberts?—Mr. APPLEGARTH said he did not know the distance to be driven, nor was there any information in Mr. Roberts's report which would enable him to make any estimate. Speaking roughly, he should say it was no use commencing such a work unless they had 2000t. or 3000t.

Mr. WALKER asked whether Mr. Roberts had been paid for his report?

The CHAIRMAN said he had been paid 50t., and wanted 50t. more. ("Oh, oh, I") The directors had written to Mr. Roberts, drawing attention to the shortness of his report, but no further report had been received.

In the course of a short discussion which ensued it came out that Mr. Argoll had offered to lease the mine for six months, but it was decided that such an offer could not be accepted from Mr. Argoll on the terms proposed.

Mr. WALKER suggested whether it would not be possible to raise money by debentures bearing 20 per cent.; but it was decided that such a course was not possible to be carried out.

Mr. WILSON said one or two other gentlemen expressed an opinion that the best way was to wind up the company, and eventually the meeting was made special, and on the motion of the Chairman the resolution given above for winding up the company was put and carried. It was explained that the liquidators would be as well able as the directors to deal with the property in the way which might be deemed best in the interests of the shareholders.

Mr. Wilson, Mr. John Carr, and Mr. W. J. Lavington were then appointed liquidators, and the remuneration fixed at 100t. It was understood that Mr. Carr will act without remuneration.

A vote of thanks to the Chairman closed the proceedings.

#### For remainder of Meetings see to-day's Supplement.

#### ECHOES FROM THE MINING MARKET.

Dulness prevails in the mining market, and although isolated advances may take place in particular shares, from discoveries or otherwise, we are not likely to see activity set in before the turn of the year. At the present moment the stocks showing most life are lead and colliery shares, which keep firm at late quotations. Tin securities are extremely dull, without the slightest signs of animation; iron shares are in about the same condition, but in copper a moderate business is doing. Lead shares are steady. At the meeting of West Chiverton adventurers, on Tuesday, a dividend of 10s. per share was declared, with a bonus of 2s. 6d. per share (together 12s. 6d.=1875t.), and a good report was read. We are glad to note that the result has thus fully borne out our remarks from time to time in these columns, by which we laid before our readers the regular progress of the mine and foretold the probable dividend. As a full account of the meeting will be found in another column, we need only add that it passed off well, and that great satisfaction was expressed at the excellent progress made under the present management. A new second agent has been, or is to be, appointed, vice Captain R. Narraway, whose services have been dispensed with—chiefly, we believe, on account of inharmonious working with Captain Southey, the head of the mining staff.

News from Cornwall is not of much importance this week. Matters down there are still very dull, and most of the changes in the tin mines appear to be for the worse. In consequence of the increasing depression of mining, some activity has been shown of late in the establishment and encouragement of new industries. At Camborne a large mill has been erected, and in other districts there are signs of attention being given to the manufacturing interests. East Chiverton has a credit balance of 365t. 15s. Levant, we hear, is looking rather better; but improvements, alas! are not of much use with tin below 50t. per ton. Last month, North Levant made a profit of 150t. It is stated that with tin at only 10t. per ton, 1000t. a quarter could be made. West Godolphin is doing very fairly, considering all things. There is a credit balance of 410t.—at the previous meeting this was only 16t.; and during the past four months nearly 40 tons of tin and 10 tons of copper have been sold: 134 hands are employed here, 98 men, 19 boys, and 17 girls. West Tolgus shares have risen heavily, and are now about 60t. each. The rise, it is said, is solely due to market operations, and not to any improvement at the mine. South Great Work has a balance of assets over liabilities amounting to 414t.

St. Ives Consols, it is said, has been sold at last by private contract. It has been definitely resolved that all the old part of the mine be forthwith stopped, and the pitwork be drawn to surface and disposed of. So the future working will now be confined to the Goole Pellaar part, and only one agent in future will be required. The accounts show a debit balance of 940t. A call of 3s. per share (880t.) has been made, and 488 shares have been relinquished. A petition has been presented to the Stannaries Court to wind up the New Dolcoath Tin Company. This mine was once well known on the market as Camborne Vean. With reference to our remarks last week on the Creavener and Wheal Abraham Mines, it appears that the old company has for some time past been in liquidation with a view to renewing working under a new company. About the middle of the year the liquidators issued circulars asking the co-operation of the shareholders of the old company, and several, we believe, have subscribed their *pro rata* share in the new company. There appears, however, to be some doubts as to whether the liquidators have been successful in their work of re-construction, but from absence of information to the contrary it is supposed they have been so. We note that the monthly sales have of late largely increased. It is believed by many that a vigorous working would amply repay the outlay.

In the colliery share market the principal business has been done in Chapel House shares. In Thorp's Gawber also there has been more doing, in consequence of improved accounts from the collieries. We hear that 14s. per ton is now being obtained at the pits' mouths.

The foreign share market has not been very animated. Richmonds are weaker on the publication of the accounts, the extreme vagueness as to the date of the dividend having caused many sellers. Eberhardt, after re-opening on the result of the meeting, are stronger again. Cape Copper has just given the usual dividend of 20s. per share. Javall are rather weaker. These shares do not rise as expected;

on the other hand, Flagstaffs have fractionally improved. In other shares there is little change to notice.

JAMES H. CROFTS.

#### THE VAN MINES—MONTHLY REPORT.

Dec. 15.—As under, I beg to hand you my monthly report and setting list:—Seaham's shaft is down 12 fms. 1 ft. below the 90. The 90, east of shaft, is extended 12 fms. upon the main leader of the lode, which is worth for lead ore, for the width carried, 35t. per cubic fathom; set to six men, at 25s. per fathom. The same level, west of shaft (also driving upon the main leader), is worth at the present end 75t. per cubic fathom for lead ore; this level is extended 28 fms.; set to six men, at 24s. per fathom. The 75 is extended 63 fms. west of shaft; the lode driven upon in present end is worth 80t. per cubic fathom; set to six men, at 26s. per fathom. The winze sinking below this level at a point 40 fms. west of shaft is down 6 fms.; set to nine men, at 28s. per fathom. The stripping of the lode to full width in the side of the 75, at a point 50 fms. west of shaft, is set to eight men, at 80s. per fathom. The same, at a point about 30 fms. west of shaft, is set to eight men, at 70s. per fathom. The 21 fms. stop, in back of same level, west of shaft, is set to six men, at 60s. per fathom. The lode at these respective points is worth on an average 31t. per cubic fathom for lead ore. The winze sinking below this level at a point 40 fms. west of shaft is down 5 1/2 fms.; the lode looks very rich in the bottom of the level—a good sign; set to six men, at 110s. per fathom. I have this month set to six men to sink a winze below this level at a point 90 fms. west of shaft, in order to ventilate the 75 when it reaches this point, at 150s. per fathom. The stopes in back of this level are set as under:—The 92, west of shaft, to eight men, at 70s. per fathom. The 80, ditto, to four men, at 7

mines have of airing their ideas in public is at the account meetings, and then there is such an amount of restraint that comparatively little of value is said. At a meeting of their own, where the interest of no particular mine is concerned, an interchange of ideas on mining generally could not fail to be of great general advantage.

NORTH LEVANT gave 150/- profit on the past month. It is true that the mine looks a little better in one place and a little worse in another, and that the purser says, with a sigh, " Were tin but 60/- a ton, I could give 100/- a quarter in dividends;" but we really believe the more favourable state of accounts is mainly due to the determination of Captain James Bennets and his colleagues—not to do or die, or to die hard, but to do and live.—*West Briton*.

## FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Nov. 3, 1875, per *Guadiana* (s.), dated Morro Velho, Nov. 1:—

MEASUREMENTS OF THE EXCAVATION, as taken to-day, are as follows:—

Fms. ft. in.

From mark to bottom of sump	5 0 0
From bottom of sump to end of ground cast	3 0 0
From bottom of sump to top of first stope west	3 2 0
From top of first stope to top of second stope west	6 5 5
From top of second stope to top of third stope west	8 2 2
From top of third stope to top of fourth stope west	6 2 10
From top of fourth stope to top of fifth stope west	19 4 2
From top of fifth stope to top of sixth stope west	7 4 2
From top of sixth stope to top of seventh stope west	7 4 2
From top of seventh stope to bottom of driving	6 2 0
Width of the lode in the sump	5 1 0
Driven west, on the north side, in October	2 1 0
Vertical sinking for October	1 2 0

GOLD EXTRACTED TO DATE.—The produce extracted during the second division of October, a period of 11 days, amounts to 20,081-5 oits., and has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	18,429-5	from 2265	8-172
Re-treatment	1,652-0	"	732
Total	20,081-5	"	8-904

Equal to 2315-0702 ozs. troy. 1-0266 ozs. troy.

The above produce is a higher yield per ton than that obtained in the previous division, chiefly in consequence of an increased quantity of good ore having been obtained recently from the stope formed east of the sump. During this division the stamps worked on an average 23-30 hours per diem. They pulverised mineral at the rate of 205 tons daily, which may be considered as very fair duty.

Advices received Dec. 16, ex *Douro*, dated Morro Velho, Nov. 17:—

GENERAL OPERATIONS.—Since the date of my last letter these have been conducted with their wonted regularity. No interruption of any consequence has occurred either in the mine or reduction departments, and a large amount of duty has consequently been done in these as well as in the other departments of the establishments, with results which I trust will be found very gratifying.

PRODUCE FOR OCTOBER.—The produce for this month amounts to 57,939-5 oits., and has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	53,188-5	from 6495	8-189
Re-treatment	4,751-0	"	731
Total	57,939-5	"	8-920

Equal to 6679-4820 ozs. troy, or 1-0284 ozs. troy per ton.

The above gold return is nearly 12,000 oits. above that obtained in the previous month, and is, of course, the best yet since the re-opening of the mine.

This greatly improved result has been produced partly by a slight increase in the yield of the mineral treated, but chiefly by a full supply of water having been available for, and consequently better duty done by, our reduction machinery.

COST AND PROFIT.

	Oits.	Tons.	Oits. per ton.
The produce being	57,939-5	"	8-920
Less loss in melting into bars.	319-0	"	

Cost, less sums receivable in reduction of the same

57,620-5 at 7s. 9d. per oit. = £22,327 18 10

Profit

£15,377 9 0

This, the largest profit I have yet had the honour and great gratification of announcing since the re-opening of the mines, is entirely the result of an increased produce. The cost during the last few months has been very uniform, averaging from July to October, 70621. 15s. per month, the highest amount in that period being 71821., and the lowest 68871.

MINE DEPARTMENT.—The operations of quarrying, driving, and sinking continue to make satisfactory progress, and the late average high rate of haulage is still being maintained.

The lode in the sump presents a very favourable appearance both as regards the returns and size of the lode. A considerable quantity of rich ore has been recently derived from this part of our stoping ground, and a slight improvement in the general yield has thereby been effected. A large quantity of quartz and killas is still being, and for some time yet must be, quarried from the western section of the mine, but as already noted, there are now indications of a favourable character which lead us to hope that we will soon pass this most troublesome piece of ground.

REDUCTION DEPARTMENT.—The work in this department has been carried on under very favourable circumstances during the past month.

Five interruptions of any note occurred, and as a fair supply of water for all the machinery was available, an unusually large amount of stone was, therefore, reduced by the mills, and passed through the amalgamation process.

The total amount of mineral treated was 6495 tons, being fully 1200 tons more than was reduced in the previous month, and more than double the quantity that was reduced in the same month of last year. The mineral received from the mine, although slightly improved, is still mixed with poor stone, and as but little of this has been rejected, the general yield, therefore, still remains at a low standard.

GOLD EXTRACTED TO DATE.—The produce for the first division of November, a period of 10 days, amounts to 20,104-6, and has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	18,596-5	from 2202	8-444
Re-treatment	1,509-6	"	731

Total

20,104-6

"

2317-733 ozs. Troy = 1-0525 oz.

The above produce per diem is nearly the same as that obtained in the third division of last month, proving that the high rate of duty obtained in that division is still being maintained.

The health of the establishment has, until recently, been very good. Diarrhoea, and other intestinal disorders now, however, becoming rather prevalent, chiefly amongst the European and native populations.

The following telegrams have been received:—

On Nov. 23.—Produce, 10 days (first division of November), 20,000 oits.; yield, 9-1 oits. per ton; profit for the month (October), 15,500/- All going on well.

Dec. 4.—Produce, 10 days (second division of November), 18,500 oits.; yield, 8-9 oits. per ton.

Dec. 14.—Produce for the month (November), 56,000 oits.; yield, 8-8 oits. per ton.

DON PEDRO NORTH DEL REY.—Report for October: Produce and cost: Produce (252 ozs. troy), at 8s. 6d. per oit., 10s. 6d.; cost and surface explorations, 131. 7s. 4d.; loss, 1352. 17s. 1d.—First Division of November: Produce weighed 1314 oits.; remittance (one month) 2953 oits. Telegram from Rio, Dec. 8, referring to a later date than the above report, advised 4350 oits. for the month of November, and that there was still a deficiency of surface water.

SAN PEDRO.—R. M. Kitto, Nov. 3: New shaft is cleared and secured on the bottom—450 metres below the 150; we have had a very troublesome undertaking here on account of having all to do below water, however I am very well pleased with the dispatch made, and without any let or hindrance the engine is working well. The 150 cross-cut, driving south of west of new shaft, by four men, is approaching the manto, and is producing good stones of yellow bronzes, with a very kindly appearance. A winze sinking below the 135, by two men, on the north edge of the manto, is producing stones of yellow ore, but not sufficient to value; this is sinking for ventilation with the 150 cross-cut. A chifon sinking below the 135, on the east side of the manto, by two men, will produce 2 tons of 25 per cent. ore per fathom. A cross-cut driving south of west at the 85 is nearing the manto, and will produce 1 ton of 25 per cent. per fathom. A tribute pitch in the back of this level will produce 2 tons of 30 per cent. ore per fathom: this pitch is greatly improved since my last. A tribute pitch in the bottom of the 47 is suspended on account of the tributary having refused to take it.—Cuba Mine: We have passed through a manto here about 6 ft. wide, which will produce 3 tons of 25 per cent. ore per fathom. I sent you some stones of ore from here by Mr. James Phillips; this stone is over 40 per cent. We set a chifon here to day from surface to communicate with the adit level, about 20 metres perpendicular, which will take 30 metres of hypothousue; as soon as this is held we shall begin to stop here, when we hope to make good returns from this manto. We are still continuing the adit driving by two men; the ground is still favourable for the production of copper.—Santa Helena: We have set an tribute at 8s. 4d., the men to pay all costs. The Inspector of Mines was here last week, and examined the same, and quite approves of our petition to consolidate all the mines, and work them under one general management, which will be very convenient for our interests. I am glad to state everything is working well, and according to present prospects we shall be successful in our undertaking.

SWEETLAND CREEK.—Telegram from the superintendent announces the result of a further clean-up, as follows:—Gross returns, \$32,000; profit, \$13,000. I send you a remittance of \$13,000.

ALMADA AND TIRITO.—Telegram from Mr. Breach: Mina Grande lode cut in 12 fm. level, ore as before, labour returning.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Enreka, Nevada

—Hall, London.—Week's run, \$35,000. Hoisting suspended part of the week, whilst connecting new engine; resume hoisting on Thursday. Probert here.—RICKARD,

R. Rickard, Nov. 24: I cabled to you on Monday evening—"New Discovery looking well, incline 600 developing splendidly," &c. The ore we have opened on in this place is of good quality, unfortunately we are not able to get much from there for awhile until it is opened on: we are now cutting a flat for sinking, also driving on each side to ascertain the extent on its course. We have also changed the course of the 700 drift to come under this point. The continuation of the ore body, and as it occurs, is another convincing fact of the mine making in depth; in my opinion there is no doubt about the permanency of the mine in depth. The new discovery in the 600 drift is opening out well, the width now is about 18 ft. opened; we are not able to open on this ore body as fast as the old, it being all blasting ground; it is making up well. I have put some men in the 500 to cross-cut for it there. During the past week we have not done much in the mine, the dumps were filled with ore, and as the horses and mules were all epizootic, halting was suspended for a few days, and we were consequently obliged to cease hoisting. I mentioned in my last that we have resumed the driving of the Lizette tunnel towards the ore body on the west side of the hill within the last day or two; the end has a very promising appearance for striking ore soon—the end is in hard lode matter and limestone. We have not done much work on the west side of the hill this week also for want of teams to keep the dumps clear. The mine never looked more permanent than it does now, and the ore we are open-

ing on is good. We are pushing on the erection of the machinery with all possible speed; the engineer expects to be ready to start on December 1 or 2; we have been retarded by the weather and freighting or it would be ready to work by this. When it is up we shall then be able to do more work in the bottom of the mine, and also hoist more ore from the lower levels. The three furnaces were working all the week, the returns were low on account of having to smelt the fine ore from the dump, no rough to mix with it, and the furnaces smelted but a small quantity of ore. On Monday we stopped No. 3 to re-line, it sadly needed it, shall have to do the same to No. 2 in the course of a week or so.

SIEIRA BUTTES.—Result of the working at the Sieira Buttes Mine: Receipts, \$33,869; total California expenses, \$28,569; total California expenses, including cost of mining and milling, \$17,801. Tons of sulphurates saved, 61; ditto amalgamated, 45; yield per ton, \$4. The reports from the mine continue satisfactory, but the falling off in the yield during the last two months has been disappointing, and is traced by the agents to depreciation in one of the stopes. Recent letters from the agents lead to the conclusion that the appearance of the various drifts certainly seems to warrant them in expecting as good returns again in a month or two as they had down to September.

GOLD RUN.—J. A. Stone, Nov. 27: My last letter to you was Nov. 18, since which time I have driven the incline 61 ft.; it is now being up 176 ft. As I am running it on a little more than 45° of an angle, I think it is not to exceed 70 ft. to the surface. I expect to have it completed in about 10 days if the air continues good. Since my last letter we have had heavy storms, which have retarded the work which the Cedar Creek Company are doing in order to furnish me with water. I think, however, that all the outside work will be done soon, as well as the incline, if the weather continues good. It has commenced very favourably for a good water season. There is about 6 ft. of snow on the summits of the mountains.

CEDAR CREEK.—T. B. Ludlum, Nov. 22: It commenced raining here on the 12th inst., and has continued almost incessantly since that time. Our ditches are running full, and I am utilising all the water that is possible under existing circumstances. The rain so far, unfortunately, is warm, and is depositing no snow on the mountains. Should it continue so the water will soon run off, but should we have snow above it will hold much of the surplus in check, so that we will have a supply throughout the winter. I am washing in the Yankee and Jehoshaphat by day and in the Central and Pacific by night and day. The gold run is not yet ready. I intend to commence washing therein as soon as it is fitted up. I am now driving the Yankee Tunnel by day and night, and am making fair headway. The rock is now quite hard again, but will not continue so very long. The shaft in the Badger I am sinking with one shift of men, but shall put on another in a short time. I am doing all that is possible to make our property productive.

BIRDSEYE CREEK.—G. S. Power, Nov. 24: We have a full supply of water, with a good prospect that it will keep up at least for some weeks. Neece and West have been washing since the 16th inst., Walopus since the 18th inst., and we have turned the water on at Red Dog to day for the first time, and I am pleased to say that everything so far is quite satisfactory, with fair prospects of a long and favourable water season. Please excuse this hasty, as I am somewhat hurried, as is always the case in starting up the clams.

SANTA BARBARA (Gold).—The directors have received per *Douro* the usual monthly advances from Mr. Hilleke, dated Pari, Nov. 12, giving the results of the working at the mine for the month of October. During October 1111 tons of mineral were stamped, yielding 3-829 oitavas per ton, or a total of 4249 oitavas of gold, which, valued at 8s. 6d. per oitava, amounts to 18071. 19s. at the estim: ted value of the produce for the month. The mine working cost for same period was, at exchange 27 1/2 d., 1035. 10s. 1d., thus leaving an estimated profit of 772. 8s. 11d. for October; 6 tons of mineral remained unstamped on Oct. 31. The capital expenditure during October amounted to 137. 5s., expended on new black's houses. In the mine the lode in Nos. 2 and 3 stopes maintained its favourable appearance, and a pleasing improvement had taken place during the month in the yield of some. In No. 1 level and stope below same the lode continued small and unproductive. The sinking preparations were complete, and commencement made with cleaning out the shaft on Nov. 10.

PANULCILLO (Copper).—F. G. Welch, Nov. 2: For the past month we have cleared from *cauchas* 49,000 quintals metrico, at 5 per cent., and 7000 quintals metrico *Lampos* to outsiders of 5 1/2 per cent. For November I estimate a production of 50,000 quintals metrico, including *Lampos*. CHONTALES.—Mr. Smeddie, Oct. 5 and Nov

## Registration of New Companies.

The following joint-stock companies have been duly registered:—

**ABERDARE AND PLYMOUTH COMPANY (Limited).**—Capital 1,250,000<sup>l.</sup>, in 20<sup>l.</sup> shares. This is a reconstruction of the Plymouth and Aberdare Ironworks, with which Messrs. Fothergill, Hankey, and Co., who recently suspended payment, were connected. The present company is formed under the auspices of a committee of control, consisting of the principal creditors. The subscribers are—Richard Fothergill, M.P., 1, Hyde Park Gardens, W., 30; E. T. Hankey, Abchurch-yard Chambers, esquire, M.; H. S. Rodon, Stoke-on-Trent, esquire, 1; R. Fothergill, jun., Hyde Park Gardens, esquire, 1; P. Hankey, 71, Chester-square, esquire, 1; E. J. Elderton, Fulham, esquire, 1; E. Fothergill, Aberdare, spinster, 1; M. R. Fothergill, Aberdare, 1.

**NORTH WALES COLLIERIES COMPANY (Limited).**—Capital 80,000<sup>l.</sup>, in 10<sup>l.</sup> shares. To acquire the right to work for coal and other minerals in the island of Anglesea, North Wales. The subscribers (who take one share each) are—F. Tallis, Amhurst-road, Stoke Newington, publisher; J. Hart, 2, Little Bush-lane, merchant; W. Styles, 22, Leadenhall-street, manager; J. F. King, 8, Lorraine-road, Holloway; J. E. Hartley, 54, Upper Berkeley-street, Portman-square, timber merchant; and E. Sheridan, Victoria Cottage, Mitcham, commission agent. The parties to the agreement for the acquisition of the property are—W. Walter, J. W. Terry, and G. Strutton of the one part, and H. Grevener on behalf of the company. The remuneration for the directors is fixed at two guineas for attendance at meetings, &c.

**PARANA MERCHANTS (Limited).**—Capital 10,000<sup>l.</sup>, in 100<sup>l.</sup> shares. To confirm an agreement made between C. W. Kitto, of the one part, and J. G. Hurnell for the transfer of land, mines, &c., in the province of Parana, South Brazil. The subscribers are—J. S. Hurnell, 50, Blenheim-crescent, N., accountant, 1; H. R. Arnold, Barnet, architect, 1; W. Withers, Kensington, purveyor of meat, 3; C. Hurnell, 50, Blenheim-crescent, widow, 1; W. Bluffield, Polton, Beds, farmer, 1; G. Ardener, Polton, farmer, 1; F. White, 3, Essex-street, Islington, diamond mounter. Mr. C. W. Kitto, of 46, Russell road, will be the managing director.

**HOLWELL IRON COMPANY (Limited).**—Capital 14,000<sup>l.</sup>, in 100<sup>l.</sup> shares. To acquire ironstone mines (the locality of which is not given), and also to carry on business as ironmasters and smelters. The subscribers are—H. A. Alport, C.E., Nottingham, 25; E. H. Carbutt, Leeds, mechanical engineer, 25; T. Coates, St. Ives, coalmasters, 20; R. Dalgleish, Melton Mowbray, civil engineer, 20; C. G. Hill, Nottingham, lace manufacturer, 20; R. Howson, Middlesborough, engineer, 10; and J. Marigold, Birmingham, 10. The directors are—E. H. Carbutt, R. Howson, and C. G. Hill, the qualification being 10 shares.

**ODESSA TRAMWAYS COMPANY (Limited).**—Capital 360,101<sup>l.</sup>, in 10<sup>l.</sup> shares. The subscribers to this company (who take one share each) are—J. M. Gillies, 27, Belsize Park Gardens; G. Richardson, Lombard-court; J. W. Greig 15, Ellington-street N.; J. R. Maples, Finsbury-place; G. Wade, Dean-street, Peckham; W. S. MacLaren, Thames Ditton; and James Fraser, Bank Buildings, Lethbury.

**IMPROVED GAS COMPANY (Limited).**—Capital 25,000<sup>l.</sup>, in 25<sup>l.</sup> shares. To acquire letters patent for improvements in the means and apparatus for carbureting air or gas. The subscribers are—Lord Graves, Thanet, Portpoin, Cornwall; H. F. Twyman, 10, Down-street, Piccadilly; G. W. Hannam, Reynolds, Rotherfield; J. W. Gidney, Westham Abbey; H. Beckwith, 21, Finsbury-circus; C. J. Dorman, 15, Southborough-terrace, Peckham; H. Sleeman, Sydenham Park.

**GENERAL WAREHOUSING, AUCTION, AND BANKING ASSOCIATION (Limited).**—Capital 50,000<sup>l.</sup>, in 1<sup>l.</sup> shares. To carry on business as auctioneers, agents, and merchants. The subscribers (who take one share each) are—Walter Miller, 123, Upper Grange-road, Old Kent-road; S. G. Hanson, 20, Threadneedle-street; F. C. Phillips, 32, Maddox-street; G. W. Pike, 3, Montague-street, Bow; E. J. Loye, 6, Summer-road, Croydon; W. H. F. Trebil, 442, Old Kent-road; and G. Lund, 9, Bush-lane.

**WILLIAM JESSOP AND SONS (Limited).**—Capital 40,000<sup>l.</sup>, in 50<sup>l.</sup> shares. To acquire the Brightside, the Park, and the Soho Works, Sheffield, belonging to Messrs. Wm. Jessop and Sons. The subscribers are—H. R. Bolstone, 24, York-street, Manchester, merchant, 500; T. Rose, 14, Bank-street, Manchester, contractor, 200; W. G. Blake, Sheffield, 200; J. Hale, Sheffield, wholesale grocer, 100; M. Stevenson, Glassop-road, Sheffield, manager; J. Burdekin, Sheffield, merchant, 100; J. Slagg, Sheffield, gentleman, 100. The directors are—Messrs. H. R. Ballstone, Joseph Slagg, W. G. Blake, M. Stevenson, J. Burdekin, T. Rose, and J. Hall, the qualification being the holding of 100 shares.

**NANT HIR COLLIERY COMPANY (Limited).**—Capital 8000<sup>l.</sup>, in 50<sup>l.</sup> shares. To acquire coal mines, in the parish of Llangollen, Glamorgan. The subscribers are—G. R. Jones, Treorky, Innkeeper, 3; E. E. Price, Treorky, clothier, 3; D. Bowen, Treorky, grocer, 3; J. Davis, M.D., Rhondda, 1; D. J. Jones, Treorky, collier, 1; W. Winter, Treorky; and Thomas Thomas, Treorky, collier, 1. The directors are—Messrs. J. R. D. Bowen, John Thomas, D. Owens, Thomas Thomas, W. White, and E. E. Price.

**THOMAS UNSWORTH AND COMPANY (Limited).**—Capital 75,000<sup>l.</sup>, in 10<sup>l.</sup> shares. To carry on business as millwrights and machinists. The subscribers are—Chas. Clegg, Cross-street, Manchester, 100; Thomas Unsworth, Milne Hill, Stockport, 2600; J. Johnson, Fernbank, Cheadle Hill, 50; J. Gill, 3, Church-street, Manchester; R. H. Unsworth, 6, Brown-street, Manchester, 5; H. Lees, Wilmslow, 100; E. Guthrie, Macclesfield, 5.

**MANCHESTER SECTIONAL BOILER COMPANY (Limited).**—Capital 100,000<sup>l.</sup>, in 10<sup>l.</sup> shares. To carry on the manufacture of sectional boilers and steam drying apparatus. The subscribers (who take one share each) are—James Parker, 22, Sussex-place, Southport; A. Warburton, Haslingden; R. Bertwistle, Haslingden; R. Smith, Bacup; J. Nevill, Southport; J. Carmichael, Tracton Park, Cork; and G. Stone, Prospect House, Fairfield, Liverpool.

**BRITANNIA MILLS COMPANY, HUDDERSFIELD (Limited).**—Capital 40,000<sup>l.</sup>, in 6<sup>l.</sup> shares. To acquire the Britannia Mill, North Crossland, Huddersfield.

**SMITH'S VACUUM BRAKE COMPANY (Limited).**—Capital 60,010<sup>l.</sup>, in shares of 5<sup>l.</sup> and 1<sup>l.</sup>. To acquire letters patent for improvements in railway brakes. The subscribers (who take one share each) are—R. B. Markham, 68, Lombard-street; W. J. Ridgdale, chief assayer, the Mint; J. H. Hale, St. Andrew's Wharf, Blackfriars; W. Houghton, C.E., 1, Westminster Chambers, S.W.; W. Webb, 13, Cullum-street; J. B. Birch, 71, Cornhill; and H. Brown, 7, Walbrook.

**WEST CHIVERTON.—PROPOSED TESTIMONIAL TO MR. GRANVILLE SHARP.**—In his circular to the shareholders, to which reference was made at the meeting on Thursday, Mr. Thos. Stevenson of Nottingham, says: "Totally apart and independent of what the forthcoming meeting may deem the committee of inspection itself justly entitled to for its unselfish and untiring labours, and which would be allowed only out of the profits, I do think the shareholders as a body should come forward and testify their deep sense of obligation to Mr. Granville Sharp by some solid evidence—no sham verbal thanksgiving or specifying meeting, but by a tangible sum of real golden coin. I think, also, it is not too much to say that the sum should not be a mere trifle, but a substantial sum; and if the smaller shareholders will cheerfully agree to hand to the chairman of the indefatigable committee of management 5<sup>l.</sup> per share out of the forthcoming dividend of 10<sup>l.</sup> or 12<sup>l.</sup> 6d. per share, I feel certain that the larger shareholders will, without one word of hesitation, make up the amount so raised to the handsome sum of 500<sup>l.</sup>, or a near approach to it."

**CROWN FIRE INSURANCE COMPANY.**—This company has just commenced operations, and its success is heartily to be wished for. The prospectus (which will be found in another column) contains the names of gentlemen of high standing and respectability, and this in itself tends to prove the *bona fides* of the undertaking; nothing gives so much confidence to intending investors and insurers as the knowledge that the conduct of affairs in which they have an interest is in the hands of men of honourable position. There is plenty of room for a new fire company if conducted on fair and prudent principles, and with a directorate such as the Crown Fire Insurance Company possess no reasonable doubt can be entertained of its ultimate prosperity, especially as the directors have secured the services of a gentleman well known in the insurance world, and one who has had considerable experience in some of the leading fire companies. It is the intention of the directors of the Crown, for the present, and until their position is more fully established, to accept a small amount only on a single risk; and it is evident that this resolve must command itself to all thinking minds. It has been unfortunately the practice with many new fire companies to rush at once into the acceptance of an amount on a single risk such as an old-established office only would be justified in holding. So long as new offices continue this course so sure will they end by being connected with the winding-up actions. There can be little doubt of the maxim, and it is shown in insurance business more particularly, that success is to be secured by those who know how to wait. A feature worthy of notice in a company of this description is the trifling amount of its preliminary expenses; no promotion fees are to be charged the shareholders, no large sum to be spent in pushing the business. The statistics which an experienced fire manager has at his command can be brought to bear on the business of new fire offices with equal certainty of success as that of an old one, and the investing public will find that shares in this class of security will bear comparison with any other kind of stocks or shares.

**NOVEL GAS ENGINE.**—The engine invented by Messrs. BRUCE and ANTILL, of San Francisco, for utilising the expansive force of vapours or gases either by gradual pressure or explosion consists of two or more cylinders with reciprocating pistons, said cylinders being set radially from a common centre and having their valves set so that they receive and exhaust the steam simultaneously, and also having their piston rods connected with a central shaft by means of rods operating upon the cranks of pinions gearing with a wheel upon said central shaft.

**DANCING IN A MINE.**—We have attended almost every kind of festival, apple parings, corn shuckings, harvest-home dances among the Mormons, public and private festivals commemorative of great events; but the recurring festival of all festivals, "where joy was unconfined," we ever did attend anywhere was the one held in the large chamber 500 ft. from the surface of "Mother Earth," and 800 ft. in from the mouth of the Marshall tunnel, on Wednesday, Oct. 15, 1875. We never saw any public or private party so brilliant in all its appointments, and so full of solid enjoyment and real pleasure, as was the assembly in the subterranean chamber on No. 5 lode. From the morn to the high noon of night the road leading from Georgetown to the Marshall tunnel was lined with carriages, horses, and pedestrians. It is calculated that from 800 to 1000 persons visited the tunnel during the night.—*Colorado Miner.*

**HOLLOWAY'S PILLS.**—Liver, Lungs, and Kidneys. A large number of internal maladies arise from obstructions, and the removal of which these celebrated Pills exercise the most perfect control. A course of them is strongly recommended as a remedy for almost all chronic affections, as liver complaint, congestion of the lungs, torpidity of the kidneys, and other functional disorders which cause much present suffering, and if neglected lay the foundation of dangerous disease. Holloway's Pill's are specially adapted for the young and delicate; their gentle and purifying action ranks them above all other medicines. In indigestion, nervous affections, gout and rheumatism these pills have achieved for themselves universal fame. They expel all impurities from the blood, and thus restore cheerfulness and vigour.

## Mining Correspondence.

## BRITISH MINES.

**ABERDAUNANT.**—S. Toy, Dec. 15: The north and lead-bearing part of the lode in No. 1 adit level, driving east, is very hard for excavation, but is still producing saving work for dressing, and of a kindly appearance for the production of lead. The stopes in the roof of this level is much the same as reported last week, worth 10<sup>l.</sup> per fathom.

**AMBROSE LAKE.**—P. Temby, Dec. 11: Since my last report I have carefully dialled the winze sinking below the deep adit level, and find that it has been sunk on the south part of the lode, which is fully 8 ft. south of where the rise is being put up, and the north part of the lode has not been sunk above the bottom level, and where we are daily expecting to communicate, when we shall ventilate this part of the mine, and lay open the ground for stopping away the ore at once. The lode in the end driving east is still split; the south branch is 7 in. wide, and worth for copper and mudi 1<sup>1</sup>/<sub>2 ton per fathom; the north part is 18 in. wide, and worth for copper ore 2 tons per fathom; in about 3 fms. more driving these two points will come together, when we may expect an improvement. The lode in the rise is 20 in. wide, and worth 3 tons of ore per fathom. We have not been driving west for the past month, owing to the impure air; when the communication is made we shall continue the driving at once. We have laid down the tramway in our bottom level, which is saving in labour in clearing the stuff at 6<sup>l.</sup> per month. We have about 15 tons of ore now at surface ready for sampling, and about 50 tons of mudi ready for the kilns.</sub>

**BEDFORD UNITED.**—Wm. Phillips, Dec. 10: Our operations generally are by the side of the lode, and driving by the side of the lode will be continued for another fortnight, during which time very little change to notice will take place. The stopes throughout the mine are yielding their usual quantity of ore, and continue to look well.

**BELSTONE.**—J. Neill, Dec. 1: A shaft: The 80 cross-cut is still suspended through the water being in; we have only water enough to drive the wheel 4<sup>1</sup>/<sub>2 strokes per minute, which is not fast enough to keep the water in shaft drained down, but hope it will soon rain to give us more water, and enable us to reach the bottom of the shaft.—C. Shaft: The stops from rise, in back of the cross-cut north, on small cross-course from the 40 east, has greatly improved since my last report, yielding beautiful nests of black and yellow ore, surrounded with favourable and congenial ground, precisely of the same character as that which has been found near to all the largest deposits of ore in this mine; this shoot of ore is near the north wall of the lode, and is extending both east and west of cross-course; at present there is every prospect of its lasting for some distance. No other change to notice.</sub>

—Dec. 15: The stopes from the 40 (C shaft), referred to in my last report, is still very productive, and looking exceedingly well; the strata around it are looking very congenial. I calculate the ore we are now breaking will fetch 9<sup>l.</sup> per ton; we broke 2 tons of best ore from it yesterday, and it has every appearance of continuing.

**BOG.**—W. T. Harris, J. Barkell, Dec. 15: The snow having disappeared from the roads, our carriers are able to bring us a better supply of coals, and we expect soon to fork the water out of the engine-shaft and bottom, or 175. The 163 east, on south lodes continues to be worth about 20<sup>l.</sup> per fathom. There is no change to notice in the level driving west, on the main lode, at this level. The winze sinking below this level is worth for lead and blonde 15<sup>l.</sup> per fathom. There is no change in the cross-cut driving south at the 130. In the cross-cut, driving south at the 115, we have intersected a small branch of lead ore, at present not of much value, but we expect it will improve by driving on its course. The 60, both east and west, is still as last reported.

The same may be applied to all other bargains and tribute pitches.

**CALDBECK FELLS.**—J. Polglase, Dec. 10: A great improvement has taken place in the appearance of the lode in the 90 end; to-day I have taken good stones of lead from the end. At no period since I have known the mine have the prospects been so encouraging as at this time in this direction; the lode is about 5 ft. wide, very porous, and is composed of similar elements where the lode became productive in other parts of the mine. I hope in a few days to report a course of ore at this point. The stopes in back of the 30 are much as usual.

**CARGOLL.**—J. Jennings, Dec. 15: Setting Report: Doctor's Engine-Shaft: To drive the 24, east and west of shaft by 10 men, at 5<sup>l.</sup> per fathom; also to case and divide the whin-shaft from the 11 down to the 24; the lode in each end is 2<sup>1</sup>/<sub>2 ft. wide, mixed with kilian, quartz, and mudi. The eastern end here, when extended about 6 fms. further east, will come under a very promising looking lode gone down from the 11 east, consisting of beautiful quartz, with blonde, blonde, and some fine stones of rich lead; no doubt when reached to that point in the 24 we shall open up some profitable ground. The 11 west, to drive, by four men, at 4<sup>1</sup>/<sub>2</sub> per fathom; the lode here is not looking quite so well, its bearing is going in a more south-western direction than usual; consequently it is not looking so favourable. I think that this is only temporary. The 11 east, to drive by eight men, at 4<sup>1</sup>/<sub>2</sub> per fathom; the lode here looks very kindly to shortly improve. In the 220, driving east, the lode is 2<sup>1</sup>/<sub>2 ft. wide, and will yield 1<sup>1</sup>/<sub>2 ton of copper ore per fathom.</sub></sub></sub>

**CARLWELL.**—W. H. Beckwith, Dec. 15: Setting Report: Doctor's Engine-Shaft: To drive the 24, east and west of shaft by 10 men, at 5<sup>l.</sup> per fathom; also to case and divide the whin-shaft from the 11 down to the 24; the lode in each end is 2<sup>1</sup>/<sub>2</sub> ft. wide, mixed with kilian, quartz, and mudi. The eastern end here, when extended about 6 fms. further east, will come under a very promising looking lode gone down from the 11 east, consisting of beautiful quartz, with blonde, blonde, and some fine stones of rich lead; no doubt when reached to that point in the 24 we shall open up some profitable ground. The 11 west, to drive, by four men, at 4<sup>1</sup>/<sub>2</sub> per fathom; the lode here is not looking quite so well, its bearing is going in a more south-western direction than usual; consequently it is not looking so favourable. I think that this is only temporary. The 11 east, to drive by eight men, at 4<sup>1</sup>/<sub>2</sub> per fathom; the lode here looks very kindly to shortly improve. In the 220, driving east, the lode is 2<sup>1</sup>/<sub>2</sub> ft. wide, and will yield 1<sup>1</sup>/<sub>2</sub> ton of copper ore per fathom.

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**CARLWELL.**—W. H. Beckwith, Dec. 15: Setting Report: Doctor's Engine-Shaft: To drive the 24, east and west of shaft by 10 men, at 5<sup>l.</sup> per fathom; also to case and divide the whin-shaft from the 11 down to the 24; the lode in each end is 2<sup>1</sup>/<sub>2</sub> ft. wide, mixed with kilian, quartz, and mudi. The eastern end here, when extended about 6 fms. further east, will come under a very promising looking lode gone down from the 11 east, consisting of beautiful quartz, with blonde, blonde, and some fine stones of rich

south, by two men, the month at 8*l.* per fathom; the lode is worth 6*l.* per fathom. There are four tribute-pitches in the back of the 35 north, by eight men, at 10*l.* per ton of ore worth on an average 10*l.* per fathom. One tribute-pitch, south of shaft at this level, by two men, at 10*l.* per ton; lode worth 9*l.* per fathom. One tribute-pitch in the back of the 15, by two men, at 10*l.* per fathom; lode worth 8*l.* per fathom.

**NEW CONSOLS.**—Richard Pryor and Son, Thomas Jenkins, H. Vial, Dec. 13: Setting Report: On Saturday last we set the following:—To sink a winze below the 30, east of Thomas's shaft, by three men, at 6*l.* per fathom; lode 4*ft.* wide, worth 18*l.* per fathom. To stop the back of the 74, west of Phillips's shaft, by six men, at 6*l.* per ton; the lode for the part carried is 6*ft.* wide, and worth 20*l.* per fathom. To stop the back of the 74, east of Phillips's shaft, by four men, at 4*l.* 9*d.* per ton; the lode is 4*ft.* wide, and worth 18*l.* per fathom. To stop the bottom of the 60, east of Phillips's shaft, by three men, at 4*l.* 9*d.* per ton of stuff; the lode for part carried is 6*ft.* wide, and worth 20*l.* per fathom. To stop the back of the 50, west of Phillips's shaft, by two men, at 4*l.* 9*d.* per ton of stuff; the lode is 3*ft.* wide for the part carried, and worth 27*l.* per fathom. To stop the back of the 40, west of Phillips's shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode for part carried is 6*ft.* wide, and worth 23*l.* per fathom. To stop the bottom of the 49, west of Thomas's shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode is 6*ft.* wide, and worth 20*l.* per fathom. To stop the bottom of the 20, west of Thomas's shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode for the part carried is 5*ft.* wide, and worth 18*l.* per fathom. To stop the back of the 20, east of Thomas's shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode is 6*ft.* wide, and worth 20*l.* per fathom. To stop the back of the 20, east of Thomas's shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode is 6*ft.* wide, and worth 20*l.* per fathom. To stop the bottom of the 80, south of Phillips's shaft, by three men, at 4*l.* 9*d.* per ton of stuff; the lode is 6*ft.* wide, and worth 20*l.* per fathom. To stop the bottom of the 20, west of Thomas's shaft, by two men, at 8*l.* per ton of stuff; the lode for part carried (3*ft.*) is worth 4*l.* per fathom. To stop the back of the 20, east of Broadgate engine-shaft, by four men, at 4*l.* 9*d.* per ton of stuff; the lode for part carried (4*ft.*) is worth 20*l.* per fathom. Our machinery works well, and all surface operations are progressing satisfactorily.

**NEW HENDRA.**—Richard King, Dec. 13: The ground in the deep adit level continues just as last reported. We have cut a cross-bench which lets out a good deal of water. The lode produces some good stones of copper. No other change.

**NEW ROSEWARNE.**—E. Hosking, W. Bennetts, Dec. 15: The lode in the 67, west of Pool's shaft, is 2*1/2* ft. wide, and has a kindly appearance. The lode in the winze below the 55 west is worth 8*l.* per fathom. The lode in the 55, west of Pool's shaft, is 2*ft.* wide, yielding a little copper ore. The stopes above the 55 west is worth 18*l.* per fathom; the lode in this stop is looking so well that we intend to resume the driving of the 46 end on Saturday next.

**NEW SOUTH MERLYN.**—R. Rowlands, Dec. 16: In the driving below the level from the bottom of sump the improvement noticed in my last continues, and I hope to have a parcel of ore ready next week.

**NORTH LAXEY.**—R. Rowe, Dec. 10: Settings for December: The north engine-shaft to sink below the 121, per contract, by six miners and six labourers, at 30*l.* per fathom. The 110 fm. level stopes, by six men and six labourers, at 5*l.* 10*s.* per fathom. The 110 rise, by two men and two labourers, at 5*l.* 10*s.* per fathom. The 84 end to drive north, by two miners and two labourers, at 7*l.* 10*s.* per fathom. The 60 rise, by one miner and one labourer, at 6*l.* per fathom. The 50 sump, by two miners and two labourers, at 5*l.* 10*s.* per fathom. The 50 stop, by two miners and two labourers, at 4*l.* 10*s.* per fathom. The 50 rise, by two miners and two labourers, at 6*l.* per fathom. The 50 rise, by two miners and two labourers, at 6*l.* per fathom.

Dec. 14: The north engine-shaft is now sunk 4*1/2* fathoms below the 121, and I am glad to say there is an improvement in the lode, from 6*ft.* to 18*ft.* wide, and producing saving work for lead; when we started to sink the lode was small, and unproductive. The 110 stopes are worth 1*ton* of lead per fathom. The 110 rise is worth 15 cwt. of lead per fathom. The lode in the 84 end, driving north, is at present small, and unproductive; a small slide having just crossed the end appears to have caused this. The 60 rise is worth 1*ton* of lead per fathom. The two stopes in lead are 12*ft.* wide, and the 50 rise about 15 cwt. of lead per fathom. About 12 tons of lead ore now ready. The last sale, 30 tons, Nov. 26, realised 15*l.* 11*s.* 6*d.* per ton.

**NORTH POOL.**—W. C. Vivian, F. Clymo, Dec. 15: I have to day inspected the workings, and am much pleased with the gradual and certain improvement which is taking place in the lode in the 40 east. I broke some rich specimens of yellow copper ore from the end, and feel confident that a further improvement will be met with as we advance. The rock is becoming easier for driving through, so that I have to day been able to reduce the price to the men to the extent of 1*l.* per fathom, and have only contracted with them for 1*fm.* at the reduced price, as I think when this distance has been driven I shall be able to make a more considerable reduction, and my opinion is if we have a softer rock we shall at the same time have a good lode of copper.

**NORTH TRESKERBURY.**—Richard Pryor, Dec. 15: The lode in the stopes in the bottom of the adit level, west of Highburrow shaft, is worth 10*l.* per fathom for tin. The lode in the shallow adit level, west of Doctor's shaft, is worth 10*l.* per fathom for copper. The tribute pitches are looking better.

**OLD TINCROFT CONSOLS.**—James Pope, Dec. 15: In the 30, west of Diamond shaft, the lode is worth for tin 6*l.* per fathom. In the 20, west of Diamond shaft, the lode is 20*ft.* wide, good stamping tinstone. In the 10 west the lode is 2*ft.* wide, worth 10*l.* per fathom. The surface work is going on as well as can be expected, so that we expect to set the engine at work about the appointed time.

**OLD TREBURGETT.**—W. Hancock, W. T. Bryant, Dec. 15: We have commenced cutting down Masey's shaft by seven men. The ground in the 80 south is improved for driving. The lode in No. 4 winze, sinking under the 70, is looking well. There is no change elsewhere calling for any remark. We sampled to two pairs of silver-lead ores; No. 1 computed 33 tons; No. 2, 10 tons, for sale on the 23rd instant.

**PARYS MOUNTAIN.**—T. Mitchell, Dec. 15: There is no change in the 90 cross-cut this week. The ground consists of hard chert, and is spare for driving. The 65 west contains branches of copper and sulphur, saving work. The lode in the 45, east of cross-course, continues to look very well, yielding 4 tons copper ore and 2 tons sulphur per fathom, and opening up good ground for stoning. The trial at the 30 is now looking more encouraging. We have just met with a rusty joint, showing mineral, and hope soon to have an improvement here. The several stopes are yielding much the same as for some time past. The tribute pitches are, on the whole, looking a little better. We have recently let two more, which are beginning to yield copper of good quality. The weather having moderated this last day or two, we have resumed clearing up the precipitation pits.

**PATELEY BRIDGE.**—C. Williams, Dec. 15: New Discovery: The veins in the east end of the cross-cut north, in the 10 west, from engine-shaft, is not producing much ore at present, having been disturbed by a large cross-course, bearing a north and south direction, but I have no doubt, when we get sufficiently cleared from its influence, we shall find the vein as productive as ever. The stop in the back over the 90, west from ditto, by six men, at 8*l.* per fathom; the lode is 3*ft.* wide, worth 19*l.* per fathom. To stop the back over the 90 west, by four men, at 8*l.* per fathom; the lode is 2*ft.* wide, worth 19*l.* per fathom. To stop the back over the 80 west from the winze, by four men, at 8*l.* per fathom; the lode is 2*ft.* wide, worth 13*l.* per fathom. The 70 to drive west, by four men, at 10*l.* 10*s.* per fathom; the lode is 2*ft.* wide, composed of clay-slate, carbonate of lime, and lead and copper ores, worth 10*l.* per fathom, and showing indications of a speedy improvement. To stop the back over the 70 west, by four men, at 8*l.* per fathom; the lode is 2*ft.* wide, worth 10*l.* per fathom. To stop the back over the 70, west from ditto, by four men, at 8*l.* per fathom; the lode is 2*ft.* wide, worth 10*l.* per fathom. To stop the back over the 70 west, by four men, at 8*l.* per fathom; the lode is 2*ft.* wide, worth 11*l.* per fathom. In consequence of hard frost during the past fortnight scarcely anything has been done towards the dressing; however, we are glad to say a change has now taken place in the weather.

**SOUTH PRINCE PATRICK.**—J. Jones, Dec. 15: It is not yet in my power to report an improvement in the north driving from western shaft; the swallow having considerably disarranged the lode, but I am daily expecting it to assume its former good appearance. At the southern shaft I have been compelled to open the 53 yard level more to the west, as the lode has been drawn to south-west through the influence of the Old Churnell Lass lode. We have had some very nice lumps of lead here, but not as yet of great value. In conclusion, I beg to say that I expect to be in a position to report more favourably of both ends before long.

**SOUTH TOLCARNE.**—W. C. Vivian, Dec. 15: I have placed the stamper to cut flat at the 40 preparatory to sinking the engine-shaft, the price being 2*l.* 15*s.* per cubic fathom. I have continued the driving of the 30 east, with four men, at 3*l.* 10*s.* per fathom, the lode looking a little more favourable for copper. The 30 west is suspended. The 40 to drive east and west of cross-cut on the tin lode, by four men, at 4*l.* 10*s.* per fathom, and is in 20*ft.* tribute for the tin, the end to be carried 9*ft.* high. I should value these ends at 20*l.* per fathom, and if they continue as good we shall have a parcel of good tin to sell at the end of the month, but we must not calculate on this until we have opened further into the lode. As soon as the ends on the tin lode have been driven sufficiently to give room for driving the cross-cut further north we shall resume the latter operation, as the appearances are still in favour of more lode being near at hand. The cross-cut is now hard granite, and about 9*ft.* beyond the tin lode.

**SOUTH WARD.**—R. Goldsworthy, Dec. 15: There is no change to notice in the 90 fm. level cross-cut, except the end is letting out more water, which leads us to think we are near the lode or a branch. In the 72 south we are driving by the side of the lode, but have now put the men to cut through it, and will write you a full report for the general meeting.

**SUNSIDE AND MERRYFIELD MINES (near Pateley Bridge).**—W. Marshall, Dec. 13: The new cross-cut, which was commenced last month from the wonderful adit level, near Prosperous shaft, at a depth of 38 fathoms from the surface, has already intersected a new sun vein, about 5 feet wide, which is now running at an east and west point, and is looking well, being composed of sulphate of barites, spar, and lead ore, worth 3 bings, or 1*ton*, per fathom. The vein promises likely for further improvement, as there is a long run of ore ground in advance of this forebreast, which may be expected to prove rich, as all the other veins at the same depth have been rich in ore for a length of about 400 or 500 fms. The present drive to the late newly-discovered vein, further south, and at a point 20 fathoms deeper from the surface, by continuing the new cross-cut above-mentioned, will be completed in about a month's time. If the vein should cut rich, which may be reasonably judged from present appearances, the company will have two new veins running parallel with each other to the extent of their ground from east to west. These veins can be worked to a great advantage, as a new road has been put down from Smit Mill shaft, which is in communication with the present workings, and the dressing plant is already fixed at the surface near this point of the mine.

**TANKERVILLE.**—A. Waters, Dec. 16: In the 167 cross-cut, south from Watson's engine, we have cut into the lode (for the whole width of the level) 2*ft.*, and value the ore in sight at 7 tons for 6*ft.* long by 6*ft.* high and 2*ft.* wide. We have 2 to 3*ft.* more to cut in to get to the end of the hole bored last week, and which you will remember was not then through the ore course. We hope to get well into the lode, if not through it, by the end of next week, when I shall be able to report more fully on its value. The winze below the 152, 17 fms. west of shaft, was started against the hanging wall of the great course of ore, and, after sinking 9*ft.* perpendicularly, we have now got through to the footwall, against which the ore course for width of winze is soft, solid lead nearly, and as black as coal. It may be safely said now, I think, that we have a course of lead here 16*ft.* (not 16*ft.*) wide, and that the 167 will be found to be richer than anything previously seen in the mine. The stopes and other points yielding ore as for some time past. We have to day sold 150 tons of lead ore, and produced good stones of tin. No other change to report.

**PENNANT BARYTES.**—Dec. 16: The carbonate of barites in the new pit is fully 1 yard wide, and of excellent quality, and having found it in such a favourable position and in great quantity is a favourable feature for the mine. We have some splendid piles of stuff on the surface, and we are awaiting orders in reference to the crushing machinery. In the meantime the washers are busily engaged.

**PENNERLEY.**—W. J. Harris and J. Delbridge, Dec. 15: In the 130 fm. level, driving west, the lode continues to yield stones of lead, and the ground slow for progress. In the 120 west, the lode is improving as we proceed, now worth 2 tons lead ore per fathom, and very encouraging. In this level east we have taken down the lode, which is 1*ft.* wide, containing stones of lead; this is an improvement upon anything we have had for some fathoms driving, and we consider the prospects highly encouraging for further improvement. The lode in the winze, sinking below the 70, is 2*1/2* ft. wide, worth 2*1/2* tons of lead per fathom. Stopes without change. **Potter's Pit.** The ground in the shaft, sinking below the 75, is favourable for progress, and good work is being done by the men. The level, driving west, is producing good stones of lead, and ground fair for speed. **No. 2** and 3 winzes, sinking below the 65, are yielding lead quite equal to last report—2*1/2* tons and 4*ton* respectively. All other points are producing lead in quantities as given in last week's report.

**PENSTRUTHAL CONSOLS.**—W. Teague, 14: In Highburrow shaft, sinking under the 45, the lode is improving in appearance, and will, I think, shortly be of its former value—25*l.* per fathom; the elvan is bearing as was anticipated. In the 45, driving east of Highburrow shaft, on the copper lode, we continue to raise specimens of rich ore, with a more settled lode for the production of copper. In the 45, driving west of Highburrow shaft, the lode is worth for tin 12*l.* per fathom, with a fine masterly appearance. In the 34, driving east of Highburrow shaft, the lode is for the present disordered by a cross head, but this will soon pass the lode, when in all probability the lode will improve. In the 22, driving west of Highburrow shaft, the lode is worth for tin 8*l.* per fathom. In the 10, driving west of footwall, the lode is 2*ft.* wide, composed of clay-slate, carbonate of lime, and spar, with some stones of tin—a very promising lode to be productive at a deeper level.

**TRELEIGH WOOD.**—S. Hosking, W. Goldsworthy, Dec. 15: In the 56 cross-cut, north of the engine-shaft, we have driven on the lode about 2*ft.* in the back of the end; the ground is hard, composed of calcite, quartz, and muriatic, and as far as seen is much like what it is in the level above. We expect the lode will improve as we drive north, that being the most productive part in the upper levels. There is no change to notice in any of the other bargains. We will send you our setting report on Saturday next. Since we have changed the condensing work our stamping engine is working much better, with less consumption of fuel.

**TREVARRACK.**—James Pope, Dec. 16: We have cut and sunk on a north lode about 15*ft.*, where the lode is 2*ft.* wide, composed of peach, iron, and spar, with some stones of tin—a very promising lode to be productive at a deeper level.

**TYLWYD.**—J. Paul, Dec. 15: We have intersected the first part of the lode in the 30 cross-cut, which is 2*ft.* 6*in.* wide, composed of clay-slate, carbonate of lime, small ribs of blonde, and spotted throughout with lead ore. I am happy to say that this part is much larger and stronger in this level than it was in the level above. We do not intend to drive on this at present, as from what is seen about the lode, the back part is still before us, and water issuing freely from the present end, which, in all probability, is coming from the main part of the lode. I have had to note that it is on the part of the lode before us that we have driven the 20*ft.* long 40 fms. west of cross-cut at engine-shaft, and in grey ground all the distance. This I am in hopes will greatly improve in the 30 level. The ground in the 20 cross-cut north is not so favourable for driving as it was, being mixed up with hard bars, small

**FLYNNIMON.**—J. Garland, Dec. 15: I am glad to inform you that the thaw which set in on Friday morning last enabled us to start our pumping-wheel on Sunday afternoon. Fair progress is being made in draining the mine, and I hope to be able to go on again full swing early next week. There is not any change worthy of notice in any of the bargains we have working since last. I have the necessary ironwork for our wheel invoiced to me, and all well shall get it on the mine ready for fixing on Monday or Tuesday next.

**PRINCE OF WALES.**—J. Andrews, J. Pryor, Dec. 15: There is no change in the 77 west since last report. The lode in the 55 west has slightly improved, and is now 2*ft.* wide, yielding good stones of copper ore. We have put four men to drive the 45 fm. on the south, or what we consider to be the main part of the lode, where it is 8*ft.* wide, and will yield 4 tons of ore per fathom, worth 4*l.* per ton.

**RELIANT CONSOLS.**—J. Curtis, Dec. 16: Duke's shaft is now 6*ft.* below the 24; lode large, with stones of mundic, blende, &c., in it, much the same as for some time past.

**RHEIDOL.**—John Ridge, Dec. 11: The lode in the 30 west continues to look well; the part carried (5*ft.*) produces a good strong mixture of lead and blende. The improved character and the increased quantity of carbonate of lime the lode contains lead me to believe that lead ore will take the place of the blende, and that we are getting near the pipe of lead ore driven through in the 10. The rise in back of deep adit yields upwards of 25 cwt. of blende per fathom.

**ROMAN GRAVELS.**—A. Waters, Dec. 16: The 95, south of old engine-shaft, is now up to a point where the lode has a flat underlie, the result of the coming in of the caunter lode. We do not expect much improvement here until the end gets through the junction. There is a rich lode in the bottom of the 80, south of caunter, for a long distance. The 95 north is improving for lead again. The 80, south of Corfield's, is into a lode 3*ft.* to 4*ft.* wide, worth 3*ton* tons per fathom. The 65, south of Stokes's winze, is worth 1*ton* per fathom. There is a split in the lode here at present, the result of a joint or bed having crossed the end. The stops are yielding their usual quantities of ore.

**ROSEWALL HILL AND RANSOM UNITED.**—W. Buglehole, John White, Dec. 16: Middle Lode: The lode in the new flat-rod shaft, sinking below the 35, is looking very promising, 18*ft.* in. wide, and worth 20*l.* per fathom. The lode in the 35, driving east, is 3*ft.* wide, and worth 9

\* \* \* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Colliery Explosions (H. L. Feuerheerd, Stephen Tresseder, sen.); Explosions in Coal Mines (W. E. Teale); Explosives for Blasting in Min.; Blasting Compounds—Lithofracteur; New-Port and Alcock Black Vein Steam Coal Company; Anthracite Coke—the Utilisation of Anthracite Slack (A. Vassaret); Frontino and Bolivia Gold Mining Company; the Richmond Mining Company; Mining in Queensland: Cape Copper Mining Company; Separation of Minerals (Joseph J. well); the Dowsing Rod; Gold in Wales (T. A. Readwin); Mining in Cartiganshire (Samson Trewhern); Mining as an Investment; West Maria and Fortescue Mine; the Limited Liability Act; Willoughby Lead Mine (in Liquidation); Wheal Grenville; St. John del Rey.—Sale of a Great Iron and Steel Concern.—Meetings of the Eberhardt and Aurora, Bias Gold, Malpaso Gold, Goresda Junction and Port Madoz Railways, Grosvenor, South Great Work, West Bryn Celyn, East Chiverton, Richmond Consolidated, and Cedar Creek Companies.

## The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 17, 1875.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, G.M.B., f.o.b., Clydesdale	3 3 6	—	English, ingot, f.o.b.	83 0 0	86 0 0
" Scotch, all No. 1	3 3 0	3 15 0	" bars	86 0 0	87 0 0
" Scotch, f.o.b., Wales	6 10 0	7 0 0	" refined	89 0 0	—
" Bars, Welsh, f.o.b.	6 10 0	7 15 0	Australian	80 10 0	—
" in London	7 12 6	7 15 0	Banca	88 0 0	—
" Stafford	8 15 0	10 5 0	Straits	81 0 0	—
" in Tyne or Tees	7 0 0	—	QUICKSILVER.	—	—
" Swedish, London	8 0 0	15 10 0	Flasks of 75 lbs., ware.	11 15 0	11 17 6
" Bars, Welsh, at works	6 5 0	7 0 0	COPPER.	—	—
Railway chairs	—	—	Tough cake and ingot.	86 0 0	87 0 0
" spikes	—	—	Best selected	87 0 0	88 0 0
Sheets, Staff., in London	5 0 12 15 0	—	Sheets and sheathing	93 0 0	—
Plates, Staff., in London	5 0 12 10 0	—	Flat bottom	97 0 0	98 0 0
Hoops, Staff.	9 15 0	10 9 0	Wallaroo, in wareh.	90 0 0	—
Barrel rods, Staff. in Lon.	8 15 0	10 0 0	Burra and Currawang	89 0 0	—
STEEL.	—	—	Other brands	86 0 0	88 0 0
English, spring	16 0 0 25 0 0	—	Chili bars	81 10 0	82 0 0
cast	35 0 0 50 0 0	—	BRASS.	—	—
Swedish, kog.	18 10 0	—	Wire	94 0 0	—
" fag. ham.	21 0 0	—	Tubes	9 12 0	—
LEAD.	—	—	Sheets	9 10	—
English, pig, common	22 5 0	—	Yellow metal sheathing	7 14 0	8 14 0
" L.B.	22 10 0	—	pipe	15 0 24 0	0 0
" W.B.	23 10 0	—	red	24 0 25 0	0 0
" sheet and bar	23 10 23 15 0	—	white	38 0 29 0	10 0
" pipe	23 15 24 0	—	patent shot	26 5 26 10	0 0
" red	24 0 25 0	—	Spanish	21 15 0	—
" white	38 0 29 0	—	SPELTER.	—	—
" patent shot	26 5 26 10	—	Silesian or Rhenish	25 0 0 26 0 0	—
English, spring	16 0 0 25 0 0	—	in English port.	—	—
cast	35 0 0 50 0 0	—	English, Swansea	26 0 0	—
Swedish, kog.	18 10 0	—	Sheet zinc	31 0 0 32 0 0	—
" fag. ham.	21 0 0	—	At the works, 1s. to 1s. 6d. per box	less for ordinary; 10s. per ton less for Canada; 1X 2s. per box more than 1C quoted above, and add 6s. for each X. Ter-plate 2s. per box below tin-plates of similar brands.	—

**REMARKS.**—The general condition of the metal trade remains unchanged, and we have but to repeat that there seems but little likelihood of any change for some time to come. Perhaps with hardly an exception, the spirit of commercial enterprise is throughout the civilised world at a peculiarly low ebb. In the capital of United Germany the frequent recurrence of incendiary fires is said to be a somewhat novel mode of the expression of the fact on the part of the unemployed poor that they are starving. Throughout Germany the industrial classes are suffering from the stagnation of trade, and the various markets with which this country is in correspondence are in a like condition. The home trade is very quiet, and were it not that production has been reduced within the narrowest limits the markets would have given way long ago. The limitation of production does not indicate a healthy condition of trade, but exactly the reverse. Still, it is the lesser of two evils, for were production to be carried on to its full extent, and buyers not be found, either stocks would increase to a very serious amount or foreign markets be glutted with heavy consignments, and the period for a healthy reaction is indefinitely postponed.

**COPPER.**—At the beginning of the week the market was firm, and business was reported in Chili bars g.o.b. at 81L 7s. 6d. to 81L 10s. Burra changed hands at 89L; and there were buyers of Wallaroo at 90L. English tough is quoted 86L to 87L; best selected, 88L; India sheets, 4 by 4, 93L; strong sheets, 94L to 95L; and yellow metal, 7Ld. to 8Ld. Up to Thursday the market was firm, but rather less doing than at the commencement; but on Thursday the charters for the first fortnight in December were announced to be 1400 tons. This intelligence imparted increased firmness to the market, and 200 tons Chili bars g.o.b. were reported to have changed hands at 81L 10s. to 82L, usual cash terms. To-day 50 tons changed hands at 82L.

**IRON.**—The closing weeks of the year fail to afford any relief to the sombre colouring of the picture which the South Wales trade has presented for so long a time; but in addition to the universal stagnation, there is now a melancholy record of accidents, resulting in suffering and death, to increase the general gloom. Manufacturers are doing all they can to keep their men together, and every effort is made to supply employment, so far as it is possible to do so; but it is with the greatest difficulty that this is accomplished. For new work comes in but slowly, and advices from all quarters are of a most discouraging character. The general impression is gaining ground that some radical reform or change must be effected before the trade in South Wales can be restored to anything approaching its former condition of prosperity. It would be a matter of national congratulation if during the leisure winter months those most deeply interested in the welfare of the iron trade—leading men among the masters and the workmen—were to make it their business to devise some plan by which the evils of the past might not be repeated in the future. Many efforts in this direction have already been made. Some have been to a certain extent successful, while others have failed; but none have been found equal to the grappling with the emergency, which until it had spent its force was beyond the power of a combination of delegates. But this may no longer be so; and a well-digested scheme, universal, so far as possible, in its application, rather than simply of a local character, capable of meeting the exigencies of the trade generally rather than those of any one district, would be hailed with acclamations, and might be found, under the existing state of trade, to be the solution of the difficulty.

It is a grievous necessity to end the year with so disastrous a history as the iron trade of the country has presented for so long a period, and very pleasant would be the contemplation that there was a reasonable hope that during the coming year the exports from the various centres of the iron industry would be of a brighter hue than we have been accustomed to late.

In the North of England the pig-iron trade continues firm, by reason of the reduced make, resulting in small stocks, and a demand on foreign account and distant markets, sufficient to keep the stock down. The quotation for No. 1 is 55s.; No. 3, 50s.; No. 4, 49s., usual terms. The condition of the finished iron trade in this district is just as unsatisfactory as it is elsewhere. The demand for rails is at a very low ebb; it seems more probable that the mills still at work will have to follow the example of those that are laid off work than that any of the mills unemployed will just at present be brought into active operation again. Arrangements are being made to establish an arbitration board in the finished iron department of the district, with a view to the settlement of the rate of wages; but these arrangements are not yet completed, owing to a choice not having yet been made of an umpire whose decision should be final in the event of the two arbitrators being unable to come to an agreement. The suffering inseparable from want of abundant employment in the season of winter is beginning to be experienced in this district as well as in Wales, and meetings are being held to aid the families of those out of work.

Thousands of men among the ironworkers are in a state of complete destitution, and without any means of support. Work is offered by some of the employers to a limited number of men, but at such a reduced rate of wages that were it accepted "the men would be worse off than the Scotch workmen." How badly off that may be it is hard to say, but the Scotch are a far-sighted people, and the probability is that they would not be found willing to change places with some of their brethren in the North of England or in South Wales. The Cleveland district has the capability of producing 6,000,000 tons of iron ore annually and 2,000,000 tons of pig-iron, the estimated value of which is about 10,000,000L sterling. In this district alone one-third of the blast-furnaces are now blown out, from which may be gathered the amount of suffering which this entails upon the working classes thus thrown out of employment. The only hope of relief from a continuance of this state of things is the dawn of a new era, in which lower rates shall induce a large and healthy trade. Rails are quoted in the Middlesbrough market at 6s. 15s.; ship-plates 7L. 10s.; the demand for this description is slightly improved. Merchant bars 7L. and puddled bars 4L. 15s.

The Scotch pig-iron market opened easy, and business is reported at 63s. to 62s. 10Ld., closing at 63s. On Tuesday a large business was concluded at 62s. 10Ld. to 63s. 1 1/2d. cash, closing sellers at 63s., and buyers at 62s. 10Ld. On Wednesday the market was steady, closing 62s. 9d. to 62s. 10Ld. Yesterday morning a large business was concluded at 62s. 6d. cash, and 62s. 9d. one month, with sellers over at the close, and in the afternoon there were buyers at 62s. 4Ld., and sellers at 62s. 6d. To-day there is an interruption in the telegraph to Glasgow, and in the absence of quotations sellers quote the same as yesterday.

**SHIPMENTS.**

Week ending Dec. 12, 1874. Tons 9,372

Week ending Dec. 11, 1875. 8,677

Decrease for 1875. 755

Total increase for 1875. 81,638

**LEAD.**—The market has continued firm, and sellers are now declining to enter into contracts at current rates. Good soft English pig is quoted 22L 7s. 6d. to 22L 10s., and soft Spanish, without silver, 21L 12s. 6d. to 21L 17s. 6d., according to delivery.

**SPELTER.**—The market continues steady, and Silesian is quoted 25L 5s. to 25L 10s.

**QUICKSILVER.**—A small parcel of zinc, London rolled, realised 29L 10s.

**QUICKSILVER.**—The market is nominal, and quotations stand at 11L 15s. to 11L 17s. 6d.

**TIN.**—At the beginning of the week the market presented a firm appearance, and business was done on a larger scale. Straits was sold at 81L 15s. to 82L 10s. cash, and Australian up to 81L 10s. cash, and 79L 10s. distant arrival. On Tuesday the market was quiet, but on Wednesday it assumed greater activity, and various parcels changed hands at irregular prices. Thursday's market was steadier, and business was done in Straits at 81L to 81L 10s. cash, and in Australian at 80L 5s. to 80L 10s. cash. To-day the market is quiet, closing with a downward tendency. Straits, 81L; Australian, 80L 10s.

**TIN-PLATES** in fair demand. Prices for the most part remain unaltered.

**THE IRON TRADE (Griffiths's Weekly Report).**—Friday Evening.

—We report a reduction in the price of Scotch pig-iron this week of 6d. per ton. G.M.B. warrants close this evening in Glasgow at 62s. 7Ld. buyers, sellers asking a shade more. This day week the market left off with sellers at 63s. 3d. This shows a loss of about 6d. per ton, as above stated. We quote makers' No. 1 iron—Gartsherrie, 73s. 6d.; Coltness, 77s. 6d.; Calder, 75s. 6d.; Summerlee, 70s.; Monkland, 74s. f.o.b. Glasgow; Glengarnock, 69s. 6d.; Eglinton, 64s. f.o.b. Ardrosson; Shotts, 61s. 6d. f.o.b. Leith; Kennie, 65s. 6d. f.o.b. Boness. The iron trade continues quiet in our market. The demand for sheet-iron is less pressing than it was a month since. We have still enquired and a moderate business in this class of iron. Marked Staffordshire bars are steady at 10L. Hoops and nail-rods are also in request. Boiler-plates (best Staffordshire) are flat, and the demand for this kind is indifferent just now. On the other hand, one or two houses in Middlesbrough are said to have taken good orders for plates this week. The difference in price of Staffordshire and Middlesbrough at this moment is quite 3L per ton, and although Staffordshire plates are cheaper than Middlesbrough and being supplied with the inferior article made there at a much lower price. We expect some good Government orders to be given out before Christmas. The stipulations will be for Yorkshire and Staffordshire iron only, which will add to the orders already in the hands of the leading Yorkshire and Staffordshire houses, who can do with them just now. The scarcity of coal in the Black Country has enhanced the price of pig-iron, and stiffened the price of all kinds of iron, particularly that below 10L a ton. It is apprehended that the obstacles in the way of working the collieries will increase, the Commissioners of the Mines Drainage Act being unable to pump the water out of the mines—hence the great scarcity of coal now in the Black Country.

Pig-iron at Middlesbrough was tolerably firm on Tuesday last. Manufactured iron in the Middlesbrough district is still pressed on our market at ruinously low rates. Rails and plates are being sold at prices, by makers on the Tees, which leave them, to say the least of it, no profit. With regard to the bar trade, notwithstanding the low price of Middlesbrough iron, bars are being sold at prices very nearly proportionate to the low price of plates in this district. We have no change to notice in the state of the trade in Wales. The trade is quiet in Shropshire, even with the best makers. The works all running full time at Warrington. The Barrow Exchange was cheerful last Monday. The iron trade is no worse here. The smelters on the West Coast who make the Bessemer pig iron have improved prospects for the coming year. Scotch pig-iron is a little lower than last week, the price is advanced with its creditors for 7s. 6d. in 1/2, 2s. 6d. in cash, and the other two-thirds in bills at long dates. It will be remembered that up to the failure Mr. Shaw traded under the style and firm of Shaw and Thompson. A petition has been lodged by a creditor of the Erimus Company for liquidation, which the Court has assented to.

**COPPER.**—MESSRS. HARRINGTON, HORAN, & CO. (LIVERPOOL, DEC. 15).—Arrivals here during the fortnight of West Coast, S.A., produce—Don Guillermo, from Valparaiso, 30 tons regulus, 10 tons bars; Potosi, from Valparaiso, 720 tons bars, 200 tons ingots; Deva, from Valparaiso, 16 tons regulus, 52 tons bars. At Swansea: Croydon, from Pan de Azucar, 625 tons ores; Vigil, from Gatico, 760 tons ores; Marquis of Worcester, from Carrizal, 630 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

TIN-PLATES.	per box.	LEAD.	per box.	BRASS.	per box.
Charcoal, 1st quality	1 9 0	1 10 0	2nd quality	1 5 6	1 7 6
Coke, 1st quality	1 3 0	1 4 0	2nd quality	1 6 1	2 0 0
Black	per ton 17	0 0 17	1st quality	1 6 1	2 0 0
	15 0	10 0	2nd quality	1 6 1	2 0 0
Canada, Staff., or Gla.	15	0 0 15	Black	15	0 0 15
Black Taggers, 450 of	30	0 0	14 x 10	11,728	12,599
Total	780	2300	10,404	413	—
Representing about 12,000 tons fine copper, against 12,512 tons Nov. 30; 10,400 tons Dec. 15, 1874; 21,600 tons Dec. 15, 1873; 23,400 tons Dec. 15, 1872. Stock of Chili copper in Havre, 925 tons fine. Stock of Chili copper afloat and chartered to be delivered to the Board of Trade Returns, the total imports and exports into and from this country for the first eleven months of the following years were—					
1873. 1874. 1875.					

announces 4350 oits. for November, and there was still a deficiency of surface water. Almada and Trito,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; the Mina Grande lode has been cut in the 12, the ore as before, and labour is returning. Sierra Buttes,  $\frac{1}{4}$  to  $\frac{1}{2}$ ; the November working cost was \$22,803, against receipts, \$33,800. Plumas Eureka,  $\frac{1}{4}$  to  $\frac{1}{2}$ ; cost for November was \$17,801, against receipts \$23,569. The appearances of the drifts warrant the expectation that good returns will again shortly be made. Chontales,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; during September 1733 tons of quartz were reduced, producing 211 oits. of gold, or an average of 2 $\frac{1}{2}$  dwts. per ton; the cost was 695 $\frac{1}{2}$ , against value of gold—580 $\frac{1}{2}$ . Javali,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; in 19 days in October 1500 tons were crushed, yielding 364 $\frac{1}{2}$  oits. of gold—an average of 4 dwts. 20 grs. per ton; the reason of having worked so short a time was in consequence of being compelled to repair the water race, which required a stoppage of the mill for six days. The expenditure has been 840 $\frac{1}{2}$ , including 63 $\frac{1}{2}$  on capital account. The remittance is valued at 1000 $\frac{1}{2}$ , thus leaving a profit of 150 $\frac{1}{2}$ . The telegram sent from England, giving Captain Sohns the assay value of the tailings, had not reached him at the date of his letter. A second sample of tailings has been received, and its assay value is nearly 1 oz. of gold and 14 ozs. of silver. Exchequer,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; the manager states that when he gets the new mortars in the mill he will commence running and shipping bullion. In the spring extensive alterations will be made in the mill, in order to give it a larger capacity.

Silver Mines have been variable throughout the week, the best and steadiest market having been in Eberhardt and Aurora, which have been dealt in up to \$3,9, but relapsed upon realisations, notwithstanding the satisfactory character of the information communicated at the general meeting, reported elsewhere; at this time last year the company was 24,000 $\frac{1}{2}$  in debt, 18,000 $\frac{1}{2}$  was owed in Nevada and 6000 $\frac{1}{2}$  in this country; so desperate was the financial position of the company that the only two directors left at the board were drawing cheques upon their private banking account to pay ordinary current expenses at the London office; since then all debts have been paid, and for the first half of the present year there was a profit of 9000 $\frac{1}{2}$ , and for the last half a profit of 43,200 $\frac{1}{2}$ . When the accounts are made up for Dec. 31 there will be a balance of 23,000 $\frac{1}{2}$ . A resolution was passed approving the scheme for the immediate redemption of the debentures upon the basis of an exchange of each 10 $\frac{1}{2}$  debenture for one fully paid-up ordinary share at par, with a cash bonus of 2 $\frac{1}{2}$  10s. per share; the shares close 8 $\frac{1}{2}$  to 8 $\frac{1}{2}$ . Richmond Consolidated, 7 $\frac{1}{2}$  to 7 $\frac{1}{2}$ . Cablegram received: Week's run, \$38,000. Connecting new engine. Hoisting suspended part of the week. Resume hoisting on Thursday. The make of bullion for the season is \$1,348,000, and since February \$1,878,000. The refinery this season has produced gold and silver to the value of \$875,000, irrespective of the lead. The interval between the removal of the old small hoisting-engine and its replacement by the powerful machinery, by this time at work, has necessarily stopped both hoisting and drifting. The contractor appears to have been a fortnight late in getting the new engine to work. From this time the developments in the lowest workings can be carried on with no other limit to their progress than the number of men that can be economically set to work, and from this time also the richly leaded ores can be raised as rapidly as the smelting needs require. Looking at the nature of the ore that chiefly offered itself first for working during the past five months, it is greatly to be regretted that the more powerful machinery needed to get up the requisite ores for fluxing was not ordered to be in place months since, as the mining profits have been greatly cut down by the delay. There is, however, we believe, a large quantity of ferruginous ore with fair proportion of gold and silver still left in the upper working that will mix profitably with the ore now made accessible by the new hoisting power.

The market for Gold-Washing Shares on the Stock Exchange has been fairly active during the week, and prices are firmer. The news from California with respect to the water is most encouraging, and the indications for a good water-season are all that can be desired. To the present the rains have been heavier than has been known for many seasons, and the greatest activity prevails in this description of mining. Blue Tent, 4 to 4 $\frac{1}{2}$ ; the quotation for these shares has not altered since our last. Washing is being steadily carried on, and no doubt can be entertained of the future results. Professor Price is using every endeavour to get a good face of gravel available for attack, and matters are progressing in a satisfactory manner. Oregon, preference, 4 to 4 $\frac{1}{2}$ ; the heavy storms of rain have somewhat retarded operations, but the superintendent was in position to commence washing on the Thos claim as soon as the monitors reached the mine. These were not far from the property at date of last advices, and probably are thin active operations had been commenced. Sweetland Creek, 2 $\frac{1}{2}$  to 3; the superintendent cables the result of another clean-up, and announces that he has remitted \$13,000, the profit of the run. It should be remembered that the dividend was declared before this telegram arrived, so that apparently the above remittance will not be required for its payment.

Birdseye Creek, 2 to 2 $\frac{1}{2}$ ; these shares have been enquired for, and have changed hands at an advance. The superintendent is washing in the Neec and West and Walou groups, and has plenty of water, with a fair prospect of a long and favourable season. A letter will be found in another column. Cedar Creek,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; Colonel Ludlam writes that he is washing on four claims, and that the ditches are full of water. The annual report and balance-sheet has been issued in anticipation of the forthcoming annual meeting. The report from the agent is very exhaustive and able, and should be carefully studied by all the shareholders. There would appear to be a great future for the company, and members should act together, and support Col. Ludlam in carrying out his programme.

Malabar,  $\frac{1}{2}$  to  $\frac{1}{2}$ ; the report to be submitted at the forthcoming meeting states that the cost of the operations during the year has been 418 $\frac{1}{2}$ , and the returns have been 628 ounces of gold, realising 2428 $\frac{1}{2}$ . These returns have been obtained from 1530 hours' washing, equivalent to only two months' actual washing. Washing was commenced with the object of attacking one of the most prominent of the gravel ridges. Great difficulties, however, in the shape of pipe-clay and boulders, were encountered from the start, and when the washings at last reached the gravel ridge it was found to be on what appears to be the extreme edge of a channel, and the gravel, though rich enough to yield a profit if unaccompanied by the boulders and pipe-clay which are always found on the edge of such channels, has not in the face of these obstacles paid the cost of working. The bed-rock, whenever uncovered underneath this bank, is very high, but has gradual dip to the east, thereby indicating the presence of a channel in that direction, and the gravel immediately on the dip of the bed-rock grows richer, so far as seen, as it gets deeper. A deeper sluice was, therefore, commenced some months since into the eastern ground, and a cut is being blasted through the rim-rock in order to reach the bottom of the channel apparently lying in that direction. Over 2000 of the new shares have been applied for, and a telegram has been sent to the company's superintendent to proceed with the work as fast as practicable.

Lead mines have been tolerably active. Van, 29 $\frac{1}{2}$  to 30 $\frac{1}{2}$ ; the usual monthly report appears in another column. Very good progress is making in sinking the shaft below the 90, and the mine is looking exceedingly well. The sale on Thursday, 500 tons lead and 200 tons blende, realised 8468 $\frac{1}{2}$ . Pateley Bridge, 5 $\frac{1}{2}$  to 50; the mine is looking well, as will be seen from the report in another column. Smelting is going on without interruption, and turning out lead quite equal to expectations. Grogwinion, 3 to 4; the usual monthly sampling of 70 tons of lead will take place to-morrow. Wye Valley, 4 $\frac{1}{2}$  to 5 $\frac{1}{2}$ ; the manager reports the mine to be looking better; 40 tons of lead—the produce of one month's work—will be sampled to-morrow. West Wye Valley, 3 to 3 $\frac{1}{2}$ ; the works are being pushed forward rapidly. Brookes's shaft is down 3 fathoms, and making capital progress. West Goginan, 1 $\frac{1}{2}$  to 2; the underground works show a decided improvement. South Cwmystwith, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; the No. 2 lode is opening out well, and yielding fine lead ore. Melindur Valley, 2 to 3; the agent reports that the mine is looking very much better, and that good lead ore has been cut into the 26 fm. level east. Llanidloes, 3 to 3 $\frac{1}{2}$ ; 20 tons of lead will be sampled to-morrow.

Bog, 5-16ths to 7-16ths; there is no change to notice, and everything is going on as usual. Pennerley, 1 $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; at the old mine the

120 west is decidedly improving, and eastward also the lode is looking better. At Potter's Pit fair progress is making in sinking the shaft below the 75. The winzes below the 60 maintain their value. Van Consols, 1 $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; the works are progressing with regularity, and the new shaft is being pushed down with all speed to the 40, under adit, where it is believed that a course of lead will be met with. Great West Van, 10s. to 15s.; there is no doubt that the 46 west will very shortly be into a good course of lead. At Glyn the shaft will be deep enough in a few days for cross-cutting to the lode.

Copper mines have been fairly active. Cape Copper have further advanced to 37, 38; the Ookey Mine in October returned 950 tons of 32 per cent. copper, and Spectakel 56 tons of 20 per cent. The advices appear elsewhere. New Quebrada, 3 $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; Panulcillo, 1 to 1 $\frac{1}{2}$ ; Rio Tinto, 6 $\frac{1}{2}$  to 7; notice has been given of the payment, on and after Jan. 1, of the 6 per cent. interest on the shares, amounting to 6s. per share, and of the coupons due same date. Russia Copper, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Penstruthal, 8s. 6d. to 10s. 6d.; the manager, Capt. Teague, in his usual monthly report, which appears in our columns of to-day, points clearly to the probability of a course of copper ore being at hand in addition. The bi-weekly tin sales are being well maintained.

Subjoined are the closing quotations:—

Bog, 5-16ths to 7-16ths; Carn Bras, 36 to 38; Devon Great Consols, 4 to 4 $\frac{1}{2}$ ; Dolechat, 39 to 41; East Cardigan, 13 $\frac{1}{2}$  to 15; East Lovell, 6 $\frac{1}{2}$  to 7 $\frac{1}{2}$ ; East Van, 2 $\frac{1}{2}$  to 3; Great Laxey, 15 to 16; Great Wheal Vor, 3 to 3 $\frac{1}{2}$ ; Hington Down, 7 $\frac{1}{2}$  to 8 $\frac{1}{2}$ ; Marke Valley, 3 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Pateley Bridge, 5 $\frac{1}{2}$  to 5 $\frac{1}{2}$ ; Penzance, 1 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Penstruthal, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Parys Mountain, 3 $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; Roman Gravels, 12 to 13 $\frac{1}{2}$ ; Tankerville, 11 to 12 $\frac{1}{2}$ ; Tintoret, 20 to 21; Van, 20 $\frac{1}{2}$  to 30 $\frac{1}{2}$ ; Van Consols, 1 $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; West Bassett, 5 $\frac{1}{2}$  to 6; West Chirkton, 18 to 19; West Tankerville, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Wheal Grenville, 1 $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; Almada and Trito, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Birdseye Creek, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Colorado Terrible, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Don Pedro, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Eberhardt and Aurora, 8 $\frac{1}{2}$  to 9 $\frac{1}{2}$ ; Emma, 1 $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; Exchequer, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; Flagstaff, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Frontine and Bolivia, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Javali, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Last Chosen, 3 $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; New Querada, 4 to 4 $\frac{1}{2}$ ; Richmond Consolidated, 7 $\frac{1}{2}$  to 7 $\frac{1}{2}$ ; St. John Del Rey, 410 to 420; San Pedro, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ ; South Aurora, 3 $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; Sweetland Creek, 2 $\frac{1}{2}$  to 3; Tecom, 2 $\frac{1}{2}$  to 3; Argentia, 7 to 7 $\frac{1}{2}$ ; Blue Tent, 4 to 4 $\frac{1}{2}$ ; Oregon (pref.), 4 to 4 $\frac{1}{2}$ ; Ashton, 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$ .

**SHEFFIELD.**—Mr. J. R. Heard, stock and share broker, in his weekly report, says—A considerable amount of business has been done in Sheepbridge shares during the past week, and a rise of 1 $\frac{1}{2}$  per cent. has taken place. Cook's, 3 $\frac{1}{2}$  per cent. better; others quiet. The following are current rates:—Bilbao Iron Ore Company, 43 to 45; Bolokov, Vaughan, and Co., 12 to 12 $\frac{1}{2}$  prem.; Brown, Bayley, and Dixon, 25 to 24 $\frac{1}{2}$  dis., 26 odd lot; Charles Cammell and Co., 6 $\frac{1}{2}$  to 6 $\frac{1}{2}$  dis.; Charlton Iron Company, 8 $\frac{1}{2}$  to 9 $\frac{1}{2}$ ; Chillington Iron Company, 4 $\frac{1}{2}$  to 5; Ebbw Vale Steel and Iron Company, 15 $\frac{1}{2}$  to 18 dis.; G. and J. Brown and Co., 75 to 70 dis.; Hopkins, Gilks, and Co., 6 to 5 $\frac{1}{2}$  dis.; John Brown and Co., 7 $\frac{1}{2}$  to 7 $\frac{1}{2}$  prem.; Parkgate Iron Company, 21 to 21 $\frac{1}{2}$  prem., 19 $\frac{1}{2}$ , 19 $\frac{1}{2}$ , 19 $\frac{1}{2}$ , 20, 20 $\frac{1}{2}$ , 21; Staveley Coal and Iron Company, 44 $\frac{1}{2}$  to 45 $\frac{1}{2}$  prem.; William Cooke and Co., 21 $\frac{1}{2}$  to 21 dis., 21 $\frac{1}{2}$ ; Sheffield Waterworks Company, 94 $\frac{1}{2}$  to 95 $\frac{1}{2}$ ; Sheffield Gas Company, 205 to 208.

**HALIFAX SHARE MARKET.**—Dec. 16: The following quotations are from Mr. J. H. Thackrah's list:—Halifax and Huddersfield Union Bank, 29 $\frac{1}{2}$ ; Halifax Joint-Stock Bank, 28 $\frac{1}{2}$ ; Halifax Commercial Bank, 24 $\frac{1}{2}$ ; London and Yorkshire Bank, 28 $\frac{1}{2}$ ; John Crossley's, 13 $\frac{1}{2}$ ; Whitworth and Co., 9; Elland Gas, 20; Rastock Gas, 18 $\frac{1}{2}$ ; Bradford Brick and Tile, A, 24; B, 7 $\frac{1}{2}$ ; Charlestow Brick and Tile, 9 $\frac{1}{2}$ ; Ripponden Commercial, 12 $\frac{1}{2}$ ; Hebden Bridge Cotton, 10; Yorkshire Boiler and Insurance Company, 21 $\frac{1}{2}$ ; Norton Brothers, 8 $\frac{1}{2}$ , ex div.

#### BRITISH LEAD MINES.

We made some remarks last week on Mr. Murchison's pamphlet, just published, and we shall now refer to some of the valuable information he gives. There are tabular statements of the returns and average prices of British Copper, Tin, and Lead ores for 15 years past, with average price of the metal in each case. In 1860 there were 236,896 tons of copper ore sold for 1,507,134 $\frac{1}{2}$ , and the average price of best copper was 109 $\frac{1}{2}$  per ton. In 1874 the quantity was only 78,521 tons, the amount 336,417 $\frac{1}{2}$ , and the price of copper 89 $\frac{1}{2}$  12s. It is not, therefore, surprising that the dividends paid by copper mines in 1860 amounted to 262,806 $\frac{1}{2}$ , while in 1874 they were only 11,704 $\frac{1}{2}$ . Taking the highest and the lowest price of copper in the period mentioned there is a variation of 37 $\frac{1}{2}$  per ton.

As to Tin, the quantity of ore sold in 1860 was 10,462 tons, at an average price of 71 $\frac{1}{2}$  11s. 6d. per ton, and the price of tin was 136 $\frac{1}{2}$ . In 1874 the quantity was 14,039 tons, but the average price of the ore was only 56 $\frac{1}{2}$  3s., and of the metal 108 $\frac{1}{2}$  8d. In the 15 years the variation in the former was 39 $\frac{1}{2}$ , and in the latter 64 $\frac{1}{2}$  per ton. In 1860 the dividends paid by tin mines were 63,226 $\frac{1}{2}$ , and in 1874 only 32,120.

The returns of Lead ore show that in 1860 the quantity was 89,081 tons, the average price of ore 13 $\frac{1}{2}$  17s. 8d., and of pig-lead 22 $\frac{1}{2}$  6s. 3d. per ton. In 1874 the quantity was 76,201 tons, and the average price of the ore and pig-lead 14 $\frac{1}{2}$  13s. and 22 $\frac{1}{2}$  2s. respectively; in the 15 years the variation in the former was 36 $\frac{1}{2}$  6s. 4 $\frac{1}{2}$  d., and in the latter 54 $\frac{1}{2}$  per ton, "a convincing proof (says Mr. Murchison) of the general steadiness in the price of lead." He further remarks, "Compared with copper and tin, the 'stuff,' as broken from an average lead lode, contains a higher percentage of metal, and at the same time is softer, and requires much less time and expense to dress for market."

In 1860 the public Lead mining companies paid 70,826 $\frac{1}{2}$  in dividends; in 1874, 82,811 $\frac{1}{2}$ ; and in the first 10 months of 1875, 97,620 $\frac{1}{2}$ . But Mr. Murchison adds: "It must be borne in mind, that while the amounts divided by Copper and Tin mines include all the mines of those metals, the profits made by the private Lead mining companies have to be added to the above, and this may fairly be taken at an additional annual sum of 150,000 $\frac{1}{2}$ , making upwards of a QUARTER OF A MILLION of annual profit yielded by British lead mines, even under important disadvantages." In the last few years great improvements have been introduced into the mode of dressing lead ores, which have not only enabled them to be brought up to a higher percentage, but more of the metal is also extracted from the yield has been increased from the same quantity and quality of stuff.

Mr. Murchison states that in the Dividend Share List there are 18 public Lead mining companies; their paid-up capital is 669,234 $\frac{1}{2}$ . They have paid in dividends 1,702,932 $\frac{1}{2}$ . Their market value is 1,403,453 $\frac{1}{2}$ , and he remarks: "If more attention were given to legitimate Lead mining, and more capital applied to carrying it out, lead mines would be generally better managed; there would be more successes, less money would be wasted, and much prejudice would be removed."

Mr. Murchison gives particulars of upwards of 30 of the principal Lead mines both in public and private hands, a perusal of which will be found interesting and instructive. He also specially impresses on intending investors to make the fullest investigation into the merits of any property brought before them; and, particularly if they propose laying out any substantial sum, that they visit the spot with some respectable practical man, and understand the grounds on which success is anticipated. If these were done, Mr. Murchison believes that many persons would not regret it, while the yield would be good properties being more successfully and economically developed, and would ensure quicker returns. In conclusion, we heartily recommend capitalists to obtain and study the contents of this pamphlet, for we believe that no publication ever issued from the press which was more calculated to do good to an important British interest.

**NORTH LAXEY.**—The engine-shaft is down 4 $\frac{1}{2}$  fms. below the 121, lode improved in size and productiveness, being now saving work for lead. When the sinking was started at the 121 the lode was small and unproductive. The 110 stopes are worth 1 ton, the 110 rise 15 cwt., and the 60 rise 10 cwt. Two stopes in the 50 are worth 10 cwt., and the 50 rise 15 cwt. per fathom. On Nov. 28 30 tons of lead ore were sold, at 15 $\frac{1}{2}$  6s. 6d. per ton (say 459 $\frac{1}{2}$  15s.), and about 12 tons more are dressed towards another sale.

#### PATELEY BRIDGE LEAD MINES AND SMELTING COMPANY (LIMITED).

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## NOTICES TO CORRESPONDENTS.

"Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be sold on receipt; it then forms an accumulating useful work of reference."

ROYAL SCHOOL OF MINES.—I shall be glad if some correspondent will state, through the columns of the *Mining Journal*, how many separate students are at present studying at the Royal School of Mines, and what classes they are attending; also, how many have attended and how many have graduated since the School was established. I am desirous of learning whether it would be preferable to send a lad to London, Freiberg, Clausthal, or New York, but find the book published by the Royal School of Mines does not give the information sought.—G. H. [Leeds].

NICKEL AND COBALT.—Can any correspondent inform me what mines in England produce nickel. It seems that at present there is absolutely none raised, though there is said to be a good demand for it at about 4d. per unit when 5 per cent. is exceeded. If this be so, I should think there must be some mines in this country worth working for nickel alone, as I have often heard tell of mines producing it in large quantities, but I do not know where the mines are situated.—ONE BUYER.

PAYMENT OF DIRECTORS.—"R. S. T." (Ellel).—The system of payment of directors out of profits is not usual in this country. On the Continent, however, the payment of directors out of profits is very general; in England, they must secure present fees or get nothing. The Peninsular and Oriental Company was the last in which the system was tried, and the shareholders ignored the justice of the arrangement as soon as the percentage became worth having.

THE CHANNEL TUNNEL.—"F. W. D." (Swansea).—No drawing of Mr. Brunton's tunnelling machine has ever been published in the *Journal*; it consists of a series of augers so arranged that the chalk shaved off is received upon an apron, or its equivalent, and carried to the back of the machine. The numbers of the *Journal* containing the information asked for are those of Dec. 12 and Dec. 20, 1873. The estimate was 10,000,000/- sterling, as you mention.

UNDERGROUND DEPUTY.—"H. H." (Handsworth).—The book that will probably best suit you is Hopton's "Conversations on Mines." The price is 3s. 3d., post free. It will be forwarded from our office on receipt of Post Office Order.

EAST VAN.—"Major" (Southampton).—The quotation 2 to 2½ is erroneous; it should have been about 1½ to 1¾, or 1½ to 1¾; certainly not higher.

SCALE FOR ADVERTISEMENTS.—Our charge for general advertisements is—Forsix lines and under, 4s.; per line afterwards, 8d. Average, 12 words per line.

Received.—"E. B. W." (Duiseldorf).—"G. H." (Brisbane).—"C. B." (Ripley).—The letter has been forwarded—"Constant Reader" (Dolgellau).—"T. H." (Manchester).—"D. T."—"R. H. S."—"One Interested" must attach his name to his letter for publication—"Amalgam"; we will endeavour to do so—"H. S."—"W. H."—"T. J."—"B. H."—"Shareholder" (Richmond), should attend the meeting, on Wednesday, when no doubt the matter will be fully entered into. We could not insert the letter without the writer's name being appended—"Engineer" (Barnsley). We happen to know that the report is not true, and cannot, therefore, publish the letter—"Shareholder" (Wheal Grenville).—"Shareholder" (Cotter Creek). We shall report the proceedings.

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, DECEMBER 18, 1875.

## COLLIERY EXPLOSIONS.

The terrible fatality at the Swaithe Main Colliery, near Barnsley, again brings prominently forward the question of the use of gunpowder in fiery mines, where safety-lamps are considered essential against the loss of life by explosions. On several occasions during the present year we strongly protested against the use of powder in the mines of South Yorkshire, as they are known to give off a great deal of gas. It is true that on the subject being brought before the Home Secretary he took the joint opinion of the various Inspectors and sub-Inspectors, a majority of whom was in favour of using powder. We, however, did not coincide in that opinion, and we even went so far as to say that in the event of any great loss of life by an explosion, in which gunpowder was proved to be the leading agent, Mr. Cross ought to be held responsible. That opinion we now reiterate, and although we do not desire to anticipate the verdict of the jury now sitting at Barnsley, and enquiring into the cause of the deaths of some 140 or 150 persons, yet there is every reason to believe that it was the result of shot-firing, and such was the opinion of one of the deputies we spoke to on the pit bank the day after the explosion. Such being the case, surely the Home Secretary, after such wholesale slaughter, ought not to hesitate for a moment in making it imperative that in all fiery mines where safety-lamps are used powder should not be taken down for blasting the coal. It is true that during the present year Mr. Cross found that a majority of the Inspectors and sub-Inspectors were in favour of continuing the use of powder, but with every respect for the opinion, we do not think it of any great value, and a better illustration of our own persisted views cannot be better shown than by the explosion at Swaithe Main. We would also say that many of the sub-Inspectors are men of comparatively trifling experience, and whose opinions ought to be received with great care and with a liberal discount. Before their appointment, when there were only twelve Inspectors, all of them men of high standing and great practical experience as mining engineers, the latter gave a decidedly opposite opinion, for in January, 1867, a majority of them recommended that a new general rule should be made to the following effect:—

16.—In all workings in coal where safety-lamps are used as the means of lighting no blasting powder shall be used in such mine.

Now, we certainly prefer the recommendation of 1867 to that of 1875, and have no hesitation in stating that had it been carried out the explosion, not only at Swaithe Main but at several other places, would never have taken place, and many lives would have been saved. One of the great arguments against the doing away with powder where safety-lamps are deemed necessary is that it would lead to mines being worked with naked lights in order that blasting may be employed. This, we believe, could easily be prevented, for all the Government Inspectors are well aware what seams in the different districts can be worked with the naked lights, and what required safety-lamps. For several years past Mr. WARDELL, the Inspector for Yorkshire, has most pertinaciously urged upon the Government the great dangers that inevitably ensue by the use of powder in the collieries in South Yorkshire. In his last report he says:—

"The regulations concerning blasting contained in the 8th general rule, are very strict, but I would that it were prohibited entirely in all the mines where it is found advisable to use safety-lamps. Probably some day this may be so; until then we shall continue to hear of explosions of gas, which, in one way or another, can be traced to the use of powder."

What stronger testimony can be desired in favour of doing away with blasting in fiery mines than that given by Mr. WARDELL? We consider his opinion worth a great deal more than the collective wisdom of the recently-appointed sub-Inspector, for in his district there has been the Oaks explosion—the result of a shot—by which 360 persons were killed; and now we have the Swaithe Main. The question then arises, how many hundred more persons are to be killed by explosions, in which gunpowder is the chief ingredient, before the Home Secretary will consider it advisable to put a stop to blasting in collieries which are known to give off large quantities of gas, for it is evident that no possible precautions can avert these sudden catastrophes? Science, however, may in time enable the miner, or those in charge of a mine, to anticipate a sudden change, and so prevent an accident. In his last report Mr. BROUH states that when air is over 60° Fahr. it undulates at the rate of 1120 per second, whereas the real travel of the air of the mine seldom exceeds 6 ft. per second. He also pertinently remarks the day may possibly arrive when we shall find out "whether or not these phenomena are connected with explosions of fire-damp, especially with reference to shot-firing." In the meantime, however, we hold that it is the duty of the Government to take steps to prevent a recurrence of such accidents as that at Swaithe Main, and that can only be done by adopting the views of Mr. WARDELL. Managers and deputies should also be required to have some knowledge of meteorology, for they should be familiar with those philosophical instruments which relate to the ventilation of mines, by which they would greatly lessen the danger of explosions of fire-damp.

It may, however, be said that the miners in South Yorkshire during the last year or two have been fully alive to their own safety, for

at many of the largest collieries they have opposed the use of powder, and at a loss to themselves have got the coal by wedging alone. Their opinion was fully expressed a short time since by the Association secretary, Mr. J. NORMANSELL, when he said he would prohibit powder where lamps were exclusively used, and would not allow it except in stone drifts, for the "firing of a shot was nothing else than a naked light."

With respect to the explosion at Swaithe Main, there appears to be very little doubt but that powder was the cause of it, so that had we our own views, so frequently expressed during the early part of the present year, been adopted, and those also of the secretaries of the South Yorkshire Miners' Association as well, we should never have heard of an explosion at the Swaithe Main Colliery, with a loss in killed of some 140 or 150. We may now, however, expect, despite the opinion of a majority of Inspectors and sub-Inspectors, that the Home Secretary will deal with the matter as he ought to have done early in the year, or he will be obliged to do so by the force of public opinion, if nothing else. His action, based on the opinion of a majority of the Inspectors, has already caused a great sacrifice of life, and this cannot be allowed to go on any further.

## GUNPOWDER AND NAKED LIGHTS.

Whilst the whole country was distressed with the terrible accidents in South Yorkshire and in South Wales last week, six colliers lost their lives whilst working for Messrs. BRIGGS and Co., at Methley Junction Colliery, West Yorkshire. The men were at work in the Haigh Moor seam, which is from 5 to 6 ft. thick. In the first thing in the morning it was usual to burn only lamps, but later in the day mixed lights were used, pretty much at the discretion of the men, though, of course, under certain acknowledged regulations, and gunpowder was used for blasting. What took place about half-past ten on Thursday forenoon was tersely described at the inquest by a collier named THOMAS BRAGGER, who was at work with his brother in No. 4 end of bank 5. The deputy, ANSON, came to them at the bank gate, and they got him to wait to fire a bottom shot. It liberated a large quantity of coal. Witness had filled only a small quantity of the coal when, about a quarter of an hour after the shot, the bank began to "weight." He stood back in the bank gate about 15 ft., with his brother and ELIJAH TENNANT, to see where SYKES was working. They all brought their candles out. The explosion knocked him down. His coat was buried by the fall. The two deputies who were examined spoke to having found gas. One of them had found it at that very place. He said that in No. 4 end of bank 5 there had been slight traces of gas a long time ago, and he supposed that would be recorded, but he did not himself remember entering it in the report-book, and it might not be reported if the gas was got rid of, so that the men could work there. Another said, I have not lately found any gas in my district of the pit; but it was not in my own district that the explosion took place. About a fortnight ago I found a trifling quantity of gas—only enough to lift the flames of my light—and it was not reported in the pit-book, not being an accumulation.

There had been previous falls in the same locality without gas having exploded, but it is more than likely that if the finding of gas in only small quantities had been reported, Mr. WILLIAM BRUTON, who is the certified manager, would have taken steps to have stopped the practice of using mixed lights, notwithstanding the hankering after a naked light which colliers are evermore displaying. Mr. BRUTON, in his evidence, said that he examined the pit about once a fortnight, and had never himself seen any gas in it. It was probably 12 months ago since he last received any report of gas. He was down on Monday, Nov. 29, as well as on the Thursday afternoon of the explosion, after the bodies were got out. On the latter occasion he went straight to No. 4 district, where the explosion had occurred. The place smelt rather strongly of after-damp, but was quite free from fire and gas. The broken doors and stoppings had been replaced. Appearances seemed to show that the explosion happened at No. 5 bank, where there was more soot, although not much. There must have been but a small quantity of gas. The fall seemed to have pushed out the timber next the road and close up to the "face." The roof fell close up to the face, and buried some of the props. He tried whether there was any gas, but found none. Two of the killed were slightly burned, but they seemed to have died from after-damp. All the men who were killed had Davy lamps. The fall of roof would only stop the ventilation during the moment of the concussion. Sufficient space was still left for the air to pass along the face. The deputy—himself among the killed—had power to allow naked lights if satisfied that it was safe. Shots were allowed to be fired. In the main end there was a shot-hole already bored, and the drill was left in it, not fired. There was no sign of BRAGGER's shot, which must have been some time before the explosion. There was no hole charged where the deceased were found.

The account by the Inspector (Mr. WARDELL) of an examination of the pit supports all that we have set forth as to the simplicity of the occurrence, at the same time that it clearly points out what was the great defect in the practice connected with the lighting of the workmen. He said that the Haigh Moor seam was being worked in the colliery at a depth of about 135 yards. There were two shafts; the downcast was 11 ft. in diameter, and the upcast 9 ft. 6 in.; and ventilation was obtained by a 36-ft. fan. There was a total of about 55,000 cubic feet of fresh air per minute in the mine according to the last entry in the colliery book on Dec. 3. It was over a mile from the face of No. 5 bank to the shaft or bottom, and by the last measurement of air before the explosion the quantity of air passing through this district was between 5000 ft. and 6000 ft. a minute. Five banks were being worked; the first driven about 80 yards from the heading, the second about 70 yards, and the third and fourth about 35 yards. Beyond the fifth bank-gate the endings (three of them driven parallel to each other) fell about 100 yards. The five men who worked at these endings were killed; not one of those employed at the other banks were touched, and the effects of the explosion were only discernible over a limited area. Two men engaged in the westerly endings were burned. Considering the short distance the men had to go before getting to the fresh air, it was marvellous that the loss of life from after-damp was so large. The indications all seemed to point to the top of No. 5 bank-gate as the place where the gas ignited. The sheets, stoppings, and doors, were all blown on the bank faces. The door of No. 4 bank-gate, curious to say, was not affected, and he could only account for this by the other parts being clear. Some full and empty corves standing at the top might have prevented the blast there, or the door might have been standing open at the time. The deputy visited No. 5 bank-gate shortly before the explosion, and at that time there was no evidence of the roof being on the weigh. He proceeded to the men in the low ending, and in a short time afterwards the roof gave signs of being on the weigh. The men working there, in obedience to directions, as the Inspector understood, resolved to wait for the fall to take place, and Mr. WARDELL's opinion was that, in so doing, either one or more candles by misadventure were left, which, when the gas was liberated, caused the explosion. One of the deceased was nearest to No. 5 bank, his lamp being locked, and there was no signs of the gas having ignited there. The full force of the blast was much more apparent at the top of No. 5 bank than anywhere else. The men at the endings work with safety-lamps in the morning, but candles are substituted later in the day. The Inspector thought shortly that the weight came in, that the fall came down, and that gas, being liberated by the fall, was fired at some candle which it got at in the vicinity.

Of course Mr. WARDELL will have recommendations to make to the managers of the colliery. "One," he says, "will certainly be that the substitution of candles for lamps be done away with. I am always disinclined to approve of a mixture of them, and especially of it being left to the discretion of the men which to use, and, in order that there may be no mistake in future, I shall recommend that in any and all the endings they work with safety-lamps throughout." That the roof was brought down by the previous blasting is obvious, and the fact is a further illustration of the hazards which attend blasting, whose effects are so very varied, and can never be calculated with certainty. Shall we ever get back to the use of the

honest wedge? Not we fear till we have brought more influence to bear upon the miners, and upon not a few also of our mine managers. But this accident and the one at the Llan, in South Wales, which killed 12 men and injured another 12, will hasten the disuse of naked lights, for it will be remembered that the last-mentioned explosion is believed to be due to the liberation of gas from an old working which a workman liberated with his boring augur at the time that he obtained his light from a candle. As to the Methley Junction explosion, the verdict was "Accidental Death," unaccompanied with any recommendation. But the simple verdict is due probably to the fact that the Government Inspector had intimated that he should recommend certainly the disuse of mixed lights at this colliery, and we are sure that the recommendation will be acted upon. May we not add a hope that the attempt to act upon it by the proprietors and the manager will not be, as sometimes similar efforts have been, attended with obstruction by the men whose lives it is sought to save.

## ENGLISH RAILWAY IRON ABROAD.

We are unable to report any improvement in the external demand for our railway iron. The exports for the whole of November only amounted to 33,621 tons, as compared with 47,804 tons in November, 1874, and 70,781 tons in November, 1873. For the eleven months ending Nov. 30 this year the aggregate exports were 521,833 tons, against 753,341 tons in the corresponding period of 1874, and 737,250 tons in the corresponding period of 1873. The decline which has taken place in this year's exports is ominous and marked; it is also wide-spread and general, the only foreign country of any note to which we have sent more of our railway material being Peru, which, by the way, is a nation not enjoying just now the very best credit. Canada, again, has been a larger consumer of our rails this year; and with regard to Canadian railway companies, as with reference to similar Peruvian organisation, caution is certainly required at present. The most pitiable feature, however, about our foreign railway iron trade is the utter collapse of the American demand. In November we only sent the Americans 44 tons of our railway iron, as compared with 1819 tons in November, 1874, and 17,919 tons in November, 1873. In the eleven months ending Nov. 30 this year we sent the Americans 17,755 tons of our railway iron, while in the first eleven months of 1873 we dispatched 177,955 tons in the same direction, or about ten times as much. When our railway iron relation with the United States attained their greatest activity we sent them 40,000 tons per month. This was about four years since. The Americans with usual sanguine ardour were then unquestionably "overdoing it" in the matter of railroad construction, and a revolution was sure to follow. This revolution came in September, 1873, when the Northern Pacific Railroad Company collapsed, and the JAY COOKE panic commenced. But it is not to the JAY COOKE panic alone that we must attribute the lamentable disappearance of our American railway iron connection. When English railway iron became unduly dear, the Americans set to work to make rails for themselves, and so much success has crowned their efforts in this direction that we are now practically elbowed out of the American iron markets, although the Americans have still taken from us this year a tolerable quantity of pig-iron.

The decline in the demand for English rails in the United States is, there is little doubt, the primary cause of the troubles which now afflict the iron trade of South Wales. In the good old times, before Mr. HALLIDAY began his far from useful labours, South Welsh iron found a ready outlet in the United States; but the South Welsh masters began to grasp at too large profits, and the South Welsh men struck for too high wages. The lamentable result has been that South Welsh iron has been edged out of one of the most important markets which it had gradually acquired. The Russian demand may now be regarded as over for the year; it has shown a fair amount of steadiness in 1875, but still it has declined upon the whole. Thus to Nov. 30 this year we only sent the Russians 109,781 tons of our railway iron, the corresponding exports in the same direction in the corresponding period of 1874 having been 145,246 tons; and in the corresponding period of 1873, 160,401 tons. British America has ranked second this year among the external consumers of our rails, having taken 84,750 tons to Nov. 30, as compared with 62,000 tons in the corresponding period of 1874, and 54,534 tons in the corresponding period of 1873. This is a rather remarkable result, when it is remembered that the Canadian railway interest is in a very indifferent—we might almost say deplorable—plight at present, although it will probably revive some day. Australia has ranked third this year as an external consumer of our railway material. Thus we sent 74,765 tons of our railway iron to the Australasian colonies to Nov. 30 this year, the corresponding exports to the same group of settlements having been 62,000 tons in the corresponding period of 1874, and 54,534 tons in the corresponding period of 1873. The Australian demand has thus been rather giving out of late; it still, however, presents a solid and tangible importance, the shipments to the Australasian colonies in November having been 6548 tons, as compared with 7697 tons in November, 1874, and 6127 tons in November, 1873. The lesson which may be drawn from the statistics which we have been summarising is that our foreign and colonial railway iron connection has been seriously shaken by the recent course of events in the producing districts, and that if this branch of our national industry is ever to regain its old importance there must be a return to cheap and regular production.

THE SLATE TRADE.—At a meeting of the Carnarvon Slate Club, held at Carnarvon on Saturday last, the 11th inst., a rise of 10 per cent. on the existing tariff price, which came into operation on Nov. 1 last, was unanimously resolved on, such rise to take effect from Feb. 1 next. Some of the most influential members of the club suggested the propriety of a resolution that the new price should rule for 12 months certain, but the majority of the meeting thought it advisable not to bind themselves for so long a period. The Slate Club regulates the prices for the home trade, which is at present very brisk; the demand greatly exceeding the supply, and there appears to be every prospect of this continuing, but some doubts were entertained whether a similar rise will take place in the export foreign trade, which is almost exclusively confined to the Festiniog slate shipped from Portmadoc, until later in the spring.

THE LATE COLLIERY EXPLOSIONS.—The Lord Mayor on Tuesday took the chair at a special meeting of the Talke Colliery Explosion Fund Committee.—Sir T. Gabriel said the committee had in hand the balance of the Talke Explosion Fund—a sum of 7165/- invested in Consols, and 114/- at the bank. With regard to the Swaithe Colliery explosion, the Lord Mayor did not wish it to appear to the public that they were apathetic about what had unfortunately taken place. In view of the meeting he had written to the Chairman of the Swaithe Colliery Explosion Relief Committee, and had received a reply from Mr. J. Mitchell promising to communicate with him as soon as a committee had been formed. He, Sir T. Gabriel, said, as one of the trustees of the fund, he should be glad if the money could be got rid of.—Sir F. Lyett remarked that a balance of 30,000/- from the Cotton Relief Fund would, by direction of the Court of Chancery, be distributed among the hospitals of Lancashire.—Alderman Finniss observed that he, as one of the trustees of the Indian Mutiny Fund, had 128,000/- in the funds, but understood that it could not be used for other purposes without the sanction of Parliament.—The Lord Mayor: Then we may take it that we have concluded our meeting by declaring our willingness to supplement any local effort.—Mr. S. Morley, M.P., said the money the committee had in the Funds would realise 6700/-, besides which they had 114/- in the bank.

COAL AND IRON IN THE UNITED STATES.—In the year ending Sept. 30, 1875, the Old Colony Railroad Company laid 1422 tons of steel rails in its track. New coal sheds have been built by the company at South Boston. The extraction of anthracite coal in Pennsylvania to Nov. 13 this year amounted to 18,018,198 tons, against 18,120,373 tons in the corresponding period of 1874, showing a decrease of 102,175 tons this year; on the other hand, the extraction of bituminous coal in Pennsylvania to Nov. 13 this year was 3,443,187 tons, against 3,207,204 tons in the corresponding period of 1874, showing an increase of 235,983 tons this year. The combined ex-

traction of anthracite and bituminous coal in Pennsylvania to Nov. 13 this year thus amounted to 21,401,388 tons, against 21,327,577 tons in the corresponding period of 1874, showing an increase of 133,808 tons this year. The demand for coal from Pennsylvanian iron manufacturers is still light. English rails are quoted at New York at \$46 to \$49 per ton, gold, while American rails have brought \$46 to \$50 per ton currency at the works.

**COLLIERY EXPLOSIONS.**—Mr. Owen Rowlands, electrician to the late Telegraph Committee of the Board of Trade, writes:—From many years' observations, I find that by far the majority of colliery accidents take place under a peculiar condition of the earth, which continues in the form of a wave for a period of 14 to 28 days, and that the direction of such a terrestrial disturbance is invariably from S.W. to N.E., or vice versa. On the 2nd inst. the wave had increased greatly in magnitude in the Thames Valley, as manifested by the singular appearance of the sky, being obscured by thick yellow mist or vapour for three days. The disturbances still continue, indicating the recurrence of unsettled weather.

**BRITISH MANUFACTURING INDUSTRIES.**—The first of a series of popular manuals bearing this title was noticed in the Supplement to last week's Journal—the volume embracing succinct treatises on Iron and Steel, by Mr. W. M. Williams; on Copper Smelting, by Mr. J. Arthur Phillips; and on Brass Founding, Tin-plate, and Zinc Working, by Mr. Walter Graham—but the name of the publisher was inadvertently omitted in the note. They are published by Mr. Edward Stanford, of Charing Cross, and, when completed, will supply at a cost of about 24. 2s. a very useful library, containing a good insight into all our principal industries.

#### THE MINERAL RESOURCES OF THE UNITED KINGDOM.

The Mineral Statistics for 1874, prepared by Mr. ROBERT HUNT, F.R.S., of the Royal School of Mines, and with an early copy of which he has favoured us, are far less discouraging than might have been anticipated considering the depression of business which prevailed during the year reported upon. The total decrease in the value of the minerals raised has been less than 2,000,000£, and nearly the whole of this is represented in the one item of coal. We subjoin, as usual, the general summary for the last two years in order that the movement of the several products may be compared:—

MINERALS.	Raised in 1874.		Raised in 1873.	
	Tons.	Value—£.	Tons.	Value—£.
Coal	127,016,747	47,631,280	125,043,257	45,849,194
Iron ore	15,577,499	7,573,676	14,844,936	7,318,169
Copper ore	30,188	342,708	78,521	356,414
Tin ore	14,885	1,056,835	14,039	1,036,788
Lead ore	73,500	1,131,907	76,201	1,034,107
Zinc ore	15,969	61,166	16,320	48,195
Iron pyrites	56,924	35,425	55,208	35,228
Arsenic	5,448	22,844	6,268	27,408
Cobalt	6 cwt.	12	—	—
Manganese	8,671	57,765	5,778	29,201
Ochre, umber, &c.	6,348	5,410	7,122	9,478
Wolfram	50	526	324	545
Bismuth	134	68	—	—
Silver ore	—	—	32	30
Fluor spar	—	—	634	317
Clays—fine and fire, and shale (estimated)	1,755,000	655,300	2,436,912	780,159
Salt	1,785,000	892,500	2,306,567	1,153,233
Barytes	10,269	7,993	14,374	12,301
Coprolites & phosphorite	—	—	149,654	388,290
Gypsum	—	—	66,124	32,662
Other earthy minerals (est.)	—	3,000	—	3,000
Total value of minerals produced	£59,470,456	—	£57,839,697	—

The omission of coprolites in the last return is this year remedied—coprolites and phosphorite again figuring for 149,654 tons, of the value of 388,290£. Fluor-spar also appears again, being represented by 634 tons, of the value of 3174. The 385 ozs. of gold obtained is estimated at the unusually high price of 42 per oz., or 2s. 1½d. better than standard. The figures against clays and salt are much larger in the present than in the previous return, and are not this year identical—indeed, the whole return appears to have been prepared with much more care than usual. Nickel and cobalt have disappeared from the list, and the bismuth raised was of the value of 387. only. Mr. HUNT thus estimates the metals—

#### METALS OBTAINED FROM THE ORES ENUMERATED.

Minerals.	1873-Tons.	Value—£.	1874-Tons.	Value—£.
Iron, pig	6,566,451	18,057,739	5,991,408	16,476,372
Copper	5,240	502,824	4,981	447,891
Tin	9,972	1,8,9,766	9,942	1,077,712
Lead	54,235	1,268,375	58,777	1,298,463
Zinc	4,471	120,099	4,470	106,773
Gold	—OZ.	—	385	1,540
Silver	537,707	131,977	509,277	127,319
Other metals (estimated)	—	5,000	—	5,000
Total value of metals	£21,409,878	—	£19,539,070	—

**ABSOLUTE TOTAL VALUE** of the METALS and COAL, with other MINERALS, which are not smelted (except Building Stones, Lime, Slates, and Common Clays), produced in the United Kingdom:—

	1873.	1874.
Value of the metals produced	£21,409,878	£19,539,070
Value of the coal	47,631,280	45,849,194
Value of other minerals	1,681,854	2,446,049
Total value	£70,722,992	£67,834,313

This shows a decrease in the value of the metals and minerals produced from the mines of the United Kingdom in 1874, as compared with values given in the returns of 1873, of 2,888,679£. This falling off is in the value of coal, 1,782,086£; of pig-iron, 1,581,367£; and on other metals, 288,981£: showing a total decrease in the value of coal and metals of 3,652,434£, while there has been an increase on the value of the earthy minerals of about 764,500£. The quantities of the ores produced from the metalliferous, other than iron, mines of the United Kingdom have been obtained from the returns sent to the Metalliferous Mines Inspectors (but these seldom give either the quantity of metal in the ore or the value of the ore returned), and from returns made to the Mining Record Office, in reply to circulars soliciting returns of the minerals raised, the value of the ore sold, and the metal contained in the ore.

The quantities of iron ore raised from mines have been taken from returns made to the Mining Record Office, carefully compared with those sent to the Inspectors of Mines. The iron ore from open workings in Northamptonshire and other places, not coming under the Metalliferous Mines Regulation Act, have been obtained by the Mining Record Office by direct application to each individual owner.

The returns of pig-iron, &c., are obtained from the answers sent, in confidence, by the ironmasters to the Keeper of Mining Records.

As the individual coal returns cannot, under the Coal Mines Regulation Act, 1872, be published, and as the Act states that "no person, except an Inspector or Secretary of State, shall be entitled . . . to see the same," it became necessary that a circular should be sent to every colliery in the United Kingdom, asking for a return, in confidence, of the quantity of coal raised in 1874. These circulars were very largely replied to by the coalowners, and the questions asked were fully answered. In addition to this, the Coal Trade Associations generally rendered great assistance, and in some cases issued circulars to the members of those associations, expressing their desire "that the information applied for by Mr. ROBERT HUNT will be promptly and accurately supplied to that gentleman, so that his future publications may prove equally valuable as those which are already before the public." In addition to this, the railways carrying coal from the great coal fields have, at considerable trouble to their officers, furnished the Mining Record Office with most important information, some of which is published, and the overseers and other authorities have rendered much assistance.

Desiring to test in every way the accuracy of the published aggregates of the produce of the coal-producing counties, tables showing the quantities of coal sent by railway, canal, or sea from each coal field in 1873 and 1874 are given.

In conclusion, Mr. HUNT remarks that he believes the difference which appears between the returns as given by Her Majesty's In-

spectors and the Mining Record Office arises principally from the impossibility of obtaining the returns uniformly in statute tons.

#### REPORT FROM CORNWALL.

Dec. 16.—There has been a little improvement in the mining share market, and matters generally have assumed a more hopeful appearance. There is, perhaps, nothing absolutely to cause this beyond the natural tendency to reaction which, in the ups and downs of mining, we see so frequently exemplified, except the evidence which has been afforded that the last drop in tin was to no small extent caused by speculators for the fall. It really seems as if every year the tin market was becoming more complicated, and appearances less to be trusted.

Lord Robartes has very handsomely given 100£ towards the 500£ which it is proposed to offer for the best boring-machine which will be found thoroughly adapted to the wants and conditions of Cornish mining, and which Mr. Basset so generously and spiritedly started with the magnificent donation of 200£. There are other very large mining lords to whom the county may reasonably look for support in this great movement, and we hope before long to be able to announce that the whole amount has been subscribed. The matter is in the hands of the Royal Cornwall Polytechnic Society.

The announcement made in last week's report that the Cornish Consolidated Iron Mines were about to pass into new hands, with a view to vigorous organisation and working, was speedily fulfilled. Vice-Chancellor Malins on Friday last ratified, though there had been considerable opposition, the sale of these mines to Mr. W. R. Roebuck, and a small, but influential, company. There is now every reason to believe that they will be worked economically and successfully. It has been frequently stated that if these mines were prosecuted with vigour and economy, and the ore sent into the proper market, they would pay a handsome profit, even at the present price of iron ores. The fact of these mines having gone into the hands of Mr. Roebuck inspires a hope that his long-contemplated plan of connecting the Cornwall Minerals Railway with Truro and its port will now no longer be delayed. We referred to the publication of the notice concerning this line a fortnight since. There is the more reason to anticipate that it will be carried out, since the South-Western and Midland Railway Companies are pushing vigorously into the far West, and this is one of the three links that remain to be completed to put the whole of the narrow-gauge lines of the county in connection with each other. All the landowners, we understand, are favourable to the scheme, and are ready to grant the necessary land on very moderate terms. The same gentlemen who have purchased these mine have also purchased the Neath and Merthyr Collieries, in South Wales, and they hope by importing coals into this county and exporting iron ore to make the Cornish ports wear a busier appearance than they have had for some time past.

Railway affairs are exciting a good deal of interest in the West just now. The Great Western Railway Company, having arranged to acquire the Bristol and Exeter Railway at a handsome guaranteed dividend, have made an offer to take over the South Devon, based upon the principle of paying a certain percentage on the Great Western dividend as dividend to the South Devon shareholders for a certain number of years, and then effecting a conversion of stocks somewhere upon the same basis. A good deal of opposition has been raised to this by those who believe that the South Devon Railway is entitled to a guarantee as much as the Bristol and Exeter. Meetings of the shareholders in all three companies will be held to-morrow. Nothing has been suggested with regard to the Cornwall line, and as that concern is under a lease of 1000 years to the associated broad-gauge companies, which, in the event of the proposed amalgamation, would be represented by the Great Western Company only, it is thought unlikely that any change would be made. What the effect of these alterations on the traffic arrangements of the district would be remains to be seen, but it is quite possible the change may be for the better.

Gunnislake has come very prominently to the fore of late years in connection with mines and mineral works, fire-clay and brick manufactories, and the like. Within the past few weeks an old industry has been constituted on new basis. The granite quarries there, which supply an abundance of stone of excellent quality, are now in the hands of a limited liability company, under the management of Messrs. Crocker, and will be developed steadily and with energy.

#### TRADE OF THE TYNE AND WEAR.

Dec. 16.—There is little change to notice in the state of the Coal Trade here, on the whole; the complaint heard in every part of the district is that great depression prevails. Coke has fallen to a very low rate, but of course this can be traced to the state of the finished iron trade. Good coke can now be bought at 12s. per ton, which is nearly as low as the rates of 1871. Considerable shipments have been made of house coal, and also of gas coal, for both of which there is a tolerably good demand. At most of the iron and engine works and foundries makers are not well off for orders, and advantage will be taken of the occurring of the Christmas holidays to lay most of the works off two weeks. Many of the collieries will also be laid off at least one week. The accountants are now busy in preparing for the arbitration between the masters and miners in Durham. They are collecting a mass of information which must prove very useful to both parties; they visit the colliery offices, and extract the accounts from the books, and both parties have agreed to accept the accounts they render. A strike has been going on at a small colliery near Stanley, in West Durham, for some months. It appears that the master wished to reduce the hewers' prices from 9s. to 7s. per score, and the men refused to accept this, but offered to refer the matter to arbitration. The masters, however, refused this, and gave the men notice some time ago that they must accept the proposed reduction or leave the houses, and as the men did not comply they were ejected on Monday. The men have been supported from the Union funds, and houses will also be provided for them.

An action was brought by the Rev. R. D. Shaftoe, of Whitworth, against Sir George Elliot, Bart., for breach of covenant in respect to a lease of Ox Close Colliery, the amount of damage claimed being 65,000£. The case was referred to arbitration, and Mr. Wm. Wood, Bishop Auckland, was appointed arbitrator on behalf of Mr. Shaftoe, and Mr. Armstrong, Pelaw House, was appointed arbitrator for Sir George Elliot; Mr. G. C. Greenwell, mining engineer, of Poynton, being appointed umpire. The arbitration lasted over six days. Mr. Stevenson, barrister, Newcastle, instructed by Mr. Bowiser, solicitor, Bishop Auckland, appeared for the plaintiff; and Mr. R. P. Philipson, solicitor, Newcastle, appeared for the defendant. The sitting took place in October and November, and the award was given at the close of last week. It gives the plaintiff the sum of 1400£, and orders him to pay one-half of the costs of the arbitration, and also one-half of the costs of the defendant.

There was a large attendance at Middlesborough on Tuesday, and the market was very firm. There is a fair demand for pig-iron. Makers ask 50s. per ton for No. 3, but the price has scarcely been realised. There is no change in the finished iron trade, but a few orders have been received. Messrs. Jones Brothers have re-started their works at Middlesborough. It is expected that matters will improve after Christmas. In Cleveland the miners are much opposed to the proposed reduction of 2d. per ton in their rates; it is likely they will submit to a reduction of 1d. There are indications of improvement in the shipbuilding trade. There is no alteration in the Coal and Coke Trade.

**COLLIERY ENGINEERS.**—A meeting of the North of England Institute of Colliery Engineers was held in the Wood Memorial Hall, Newcastle, on Saturday, the president (Mr. Moore) in the chair. The secretary (Mr. John Gibson, of Ryhope Colliery) submitted the tracings of a new construction of boiler, which is being adopted at Ryhope Colliery, and explained its peculiarities. It was a multi-tubular boiler, and was for use underground. It had a spare fire-box, and was in two sections, so that it could be conveniently got down the shaft. He asked the opinion of the meeting upon the plans, and also upon his paper read at a former meeting, in which he recommended stays connecting each end of the boiler—not with the view

of preventing explosion, but with the view of lessening the destruction in the event of an explosion occurring.—A long discussion ensued, the President and other members being of opinion that it was unadvisable to use multi-tubular boilers underground, and that stays would be of no service in keeping the boiler together in case of an explosion; while other members expressed opinions to a contrary effect.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Dec. 16.—At one or two of the ironmaking establishments things appear to be looking up a little. The Ebbw Vale Company are enabled to give some impetus to operations by the acquisition of a few new orders for steel and iron rails for home and foreign consumption, and at Blaenavon there is an appreciable amount of activity as the times go, while, judging from the preparations which are being made it would seem that the resumption of operations at Pontnewydd is contemplated. There is hope, therefore, that these companies and their men will be able to tide over the winter better than was expected. But taking the trade altogether there is little change to be noticed since last week, and there is certainly no improvement. There is no demand for finished iron, and little prospect of there being for some time sufficient to keep the great works of the Principality going. Possibly some important step will be taken by the ironmasters of the district in the new year, when the contracts now existing between them and their men are at an end. Amongst other things there will, it is expected, be a reduction in the rate of wages, which will, no doubt, be accepted by the more reasonable men as a matter of necessity. Between this and Christmas there cannot be any change, but it may turn out that after the festive season is over and the new year entered upon that the trade will once more begin to rise out of the gloom under which it has lain for so many months. Talking of the festive season, however, it is much to be feared that it will be little better than a

small size of engine. He said a slight variation in the size, one way or the other, did not affect the efficiency of the condenser, as it was only necessary to use more or less water to condense the steam used. It had been applied with success to the smallest size up to 66 in. diameter of cylinder. The model comprised the three modifications of the ejector condenser generally made and used—the simple condenser, supplied with a head of water; the steam starting jet, when the water has to be lifted; and the overflow chamber, for slow-going engines. It was preferable to have the water with a slight head, because no starting jet was required, and the construction of the condenser was much simplified. The Chairman said the paper was a very able and interesting one. The ejector condenser had been tried at Clough Hall, underadmittedly peculiar and unfavourable circumstances, and under those circumstances it was a failure. Mr. Dunlop said the disadvantage in the case referred to would tell against any kind of condenser. Those members of the Institute who went to Leeds had an opportunity to see one at work satisfactorily. It had been said that the nozzles would become furred with bad water, but from enquiries which he had made, and his own experience, he had not found such to be the case. Mr. Woodworth said the members who went to Leeds did not see the ejector condenser actually at work, but it was used at Monkbrake Works, and those who used it gave it a good name. He, however, should not like to try it with dirty water. Mr. Dunlop said there was no risk on that account. In the course of further conversation, it was stated that one had been tried at Biddulph, and Mr. Morton himself could not make it work. Mr. Woodworth thought the speed of the engine there was too slow for that kind of condenser. Mr. Homer, president of the Institute, who arrived at this point of the discussion, said it was surprising how little was known of the ejector condenser in North Staffordshire. He should like the inventor to try it himself in the district. Mr. Dunlop received a cordial vote of thanks for his paper, which was ordered to be printed.

A new kind of Signal Bell for use in connection with mines was exhibited by Messrs. Jones and Hyde, Ketley, Kingswinford, who explained the principles on which it was constructed. Mr. J. R. Haines, secretary, who had purchased one, promised to lay before the Institute at a future meeting his experience of the signal.

After the meeting an admirable lecture was delivered to the members and their friends, in the Town Hall, on the subject of "The Geology of Coal." The lecturer was Mr. G. G. Andre, F.G.S. The President of the Institute occupied the chair. By the aid of diagrams, Mr. Andre illustrated his lecture, which was a very interesting one. In the course of a short discussion which followed it was stated that the lowest seams of coal in North Staffordshire were amongst the purest in the kingdom.

#### REPORT FROM LANCASHIRE AND CHESHIRE.

Dec. 16.—The Coal Trade continues brisk, and there is again a tendency to advance prices, although no general movement has been agreed upon. During the last few weeks the stocks of fuel which had accumulated at many Lancashire collieries have been steadily diminishing, and there is now very little coal banked, except of inferior sorts, which do not command a good sale. Shipping is dull, and this is, no doubt, due to the fact that with an increased home trade producers have asked higher prices from export customers, who are constantly holding back their orders. The Iron Trade is dull, and no improvement is expected until after Christmas, but there are sanguine anticipations as to the business of the new year.

The traffic arrangements of railway companies are simply deplorable, and there are loud outcries concerning the abominable delays which are taking place in the forwarding of goods. Recently at one of our important junctions there were six heavy trains standing for hours with engines attached, and all in readiness for starting save for the want of break-vans and guards, the fact being that owing to the low rate of wages paid to railway officials of this class, and owing also to the fearfully long hours they are called upon to work, men will not enter this department of the company's service, and if they do happen to make a start in it get out as soon as they can.

The enquiry concerning the accident at the Wigan Coal and Iron Company's Alexandra Pit, which was reported last week, was brought to a close on Tuesday. It will be remembered that the disaster arose through the colliding of the ascending and descending cages in the shaft, whereby seven men were thrown to the bottom of the pit and killed instantly. Practically, the only theory set up was that the men had been "larking" in the cage, and had so brought about the accident. Mr. Hall, the Government Inspector of Mines, however, suggested that in future further precautions should be taken to prevent too much swaying of the cage-rods, and the jury appended to their verdict of "Accidental Death" an approval of his suggestion.

There was a further hearing of the case of conspiracy to defraud, arising out of the formation of a company to work the Lady Constance Mine, in Manchester, on Tuesday. The defendants were again remanded.

#### THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been a moderate business done, the market having been steady all round, and prices show an upward tendency. In shares of iron and coal concerns the principal business has been in Benhar shares, which show a sensible improvement on the week; the new shares are now quoted 6/- paid, a call of 1/- per share being payable on them on Dec. 31. Nant-y-Glo and Blaina shares have declined another 2/-, Whitehaven Iron shares are in demand. In shares of copper concerns the dealings have not been so large as last week; prices have altered little. The shares of the Rio Tinto Company (6/- to 6 1/2) are quoted this week for the first time on the Official List of the Glasgow Stock Exchange. Shares in home mines are firm, and look like advancing. Bedford United, 1 1/2, buyers; Drake Walls, 2/-, sellers; East Cardon, 1 1/2, buyers; East Wheal Grenville, 1s. 3d., sellers; Great Laxey, 15 1/2 to 16 1/2; Gunnislake (Clitters), 3 to 3 1/2, nominally, as no shares have changed hands; Hington Down, 18s., buyers; Killifret, 1 1/2, sellers; Penruthal, 7s. 6d. to 8s. 6d.; Prince of Wales, 1s. 6d., buyers. South Rosekar, 1 1/2, sellers; Tylwyd, 7s., sellers; West Esgril Lie, 1, sellers. Little has been done in gold and silver mines' shares, though prices in some cases are rising. A good number of Frontino and Bolivia shares changed hands about 3s. Richmond shares fell to 7 1/2, being now 7 1/2 to 7 1/2. Oil shares firm, and attract some attention; this department of trade being now believed to be in a much better state. In miscellaneous the principal business has been in London and Glasgow Engineering, &c., which are finally 20 1/2 to 21 1/2. British Agricultural Association shares, after being quoted at 1, are now 2 to 3. A detailed list of the several days' business follows:—

On THURSDAY last a moderate business was done. Argentine, 7 1/2, sellers. Benhar share done at 11 1/2, closing 11 1/2 to 11 3/4; new shares also higher, at 5 1/2 to 5 1/4. Frontino and Bolivia, 3s. to 3s. 3d.; Gunnislake (Clitters), 5s. 3d., sellers. Huntington shares done at 22s., closing 22s. to 23s. Marcella shares done at 7s. Monckland, 4s., to 5s. Omoea and Cleland shares done at 5s., closing 5s. to 5s. Richmond shares opened at 8 1/2-10ths, but fell to 8 1/2, 8 1/2. South Aurora, 1 1/2, buyers. Tylwyd, 1, sellers. Tharsis shares done at 21, closing 21s. to 21 1/2; new shares done at 14, closing 14 to 14 1/2. West Esgril Lie, 1, sellers. Young's Paraffin, 7 1/2 to 7 1/2; a dividend of 4s. 6d. per share is announced as payable on the shares on the 24th inst. Scottish Wagon, 10 1/2 to 10 1/2.

RICA GOLD-WASHING COMPANY.—The report, with accounts to Nov. 30, 1875, to be submitted to the third ordinary general meeting of the shareholders of this company on the 16th inst., has been issued. The position of the concern is quite the same as at this time last year. No work has since been done at the mine, beyond the requisite amount necessary to preserve intact title. A report from Mr. C. S. Weston is annexed with the directors' report, showing that a supply of water can be obtained at an expenditure of about £30,000, if the money is forthcoming. Nothing, however, is to be done in this way until the results of the neighbouring property of Malpas are ascertained as satisfactory, which time the directors believe is not far distant. They regard the shareholders of the richness of their property, waiting only water to develop it. They have shown their personal confidence in it by taking 2000*s*, until the extra capital they have been raised; and it will be noticed that no charges appear in the accounts for secretary's salary or directors' fees for the past year.

ON FRIDAY a moderate business was done. Argentine, 7, buyers. Arinston, 7 to 7 1/2. Benhar done at 11 1/2 and 11 11-16ths, closing 11 11-16ths to 11 3/4; new shares done at 5 1/2, closing 5 1/2 to 5 1/2-10ths. Bolckow Vaughan, 1, done at 47. East Wheal Grenville, 1s. 3d., sellers. Frontino and Bolivia done at 3s., closing at 2s. price. Gunnislake (Clitters), 5s. 3d., sellers. Huntington done at 22s., closing 22s. to 23s. Javall, 1 1/2, sellers. London and Glasgow Engineering, &c., done at 20 1/2. Monckland, 4s., to 5s. Omoea and Cleland done at 5s., closing 5s. to 5s. Richmond opened at 8 1/2, but fell to 7 1/2, closing 8 to 8 1/2. South Aurora, 1 1/2, buyers. Tharsis done at 21 and 20 1/2-10ths, closing at those prices; new shares, 14 to 14 1/2. York Peninsula, ordinary, 1 1/2, sellers. Young's Paraffin, 7 1/2 to 7 1/2; a dividend of 4s. 6d. per share is announced as payable on the shares on the 24th inst. Scottish Wagon, 10 1/2 to 10 1/2.

OMOA AND CLELAND IRON AND COAL COMPANY (Limited).—At the extraordinary general meeting of the shareholders of this company to-day, a series of five resolutions relating to the increase or the reduction of capital, the amount and denomination of the shares, the qualification and number of directors, &c., were unanimously confirmed. The Chairman made some satisfactory explanations as to the company's bank account, money or loan, coal shipments to France, &c., and stated the necessity of making calls had never been required to be considered. At present, with a very poor output, 60,000 tons of coal a-year were being put out. All the pits are working fairly, one being opened only the other day. A new pit is being sunk, and the engineers say it contains a large amount of coal, and in another a deeper cut is being made into what is understood to be Bellside ironstone. The Chairman declined to commit himself, but said, "I will be disappointed if you are not working at a very fair profit." Two of the directors are rumoured to have resigned.

ON SATURDAY (being contango day) the market was quiet. Argentine, 7, sellers. Arinston done at 7. Bedford United; the mine is looking well, and shares are firm at 1 1/2 to 1 1/4, it being rumoured that a quotation is to be applied for them on the London Stock Exchange, in which case, of course, they would go higher. Benhar done at 11 1/2; new shares done at 5 1/2. East Cardon, 1 1/2 to 2. Frontino and Bolivia done at 3s., closing 3s. to 3s. 3d.; Gunnislake (Clitters), 5s. 3d., sellers. Richmond done at 8, closing 7 1/2 to 8 1/2. Rio Tinto, 6 to 6 1/2. Tharsis done from 20 15 16ths to 20 13 16ths, closing about 20 13 16ths. Tylwyd, 7 1/2 to 1. Scottish Wagon done at 10 1/2. The following were the rates of continuation current to day: Contango: 2d., even, 1d. on Canadian Copper Pyrites; 1d. on Emma; 1d. on Glasgow Cardon; 1d. on new shares; 3d. on Port Washington; 3d. on Huntington; 3d. on Marcella; 2d. on Monckland; 6d., 9d. on Richmond; 6d. on Rio Pinto; 3d., 6d., 11d., 9d., 13d. on Tharsis; even 6d. on Tharsis new; 6d. on Young's Paraffin. Backwardation: 1 1/2d. on Omoea and Cleland. The making-up prices to-day, compared with those of last contango day, show the following variations: Rise of 2s. on Monckland; 2s. on Tharsis; 1 1/2s. on new shares; and 3s. on Young's Paraffin. Falls of 4s. 6d. on Huntington; 6d. on Omoea and Cleland; and 3s. on Rio Tinto. Many shares have not altered during the account.

ON MONDAY the market was again quiet. The new account opened for settlement Dec. 30; Friday, Dec. 24, will be contango day. Benhar, done at 11 1/2, closing 11 1/2 to 11 3/4; new shares, 5 7-16ths to 5 1/2; a call of 11 per share, making 6.

paid up, is payable on these shares on 31st curr. Frontino and Bolivia, done at 3s. 3d.; Gunnislake (Clitters), 2 1/2, buyers. Killifret, 1 1/2, sellers. London and Glasgow Engineering, &c., firm, at 20 1/2 to 21 1/2. Monckland, done at 2 1/2. Prince of Wales, 1s. 3d., buyers. Richmond, done from 8 to 8 3-16ths, closing 8 3-16ths to 8 1/2. Tharsis, done at 20 1/2, closing 20 1/2 to 20 1/2; new shares, 14 to 14 1/2. Tylwyd, 1, sellers. Uphill Oil, 4 1/2 to 5. Whitehaven Iron, 3 1/2, buyers. Young's Paraffin, done at 7 1/2, closing 7 1/2 to 7 1/2.

On TUESDAY little business was done. Benhar, done at 11 1/2, closing 11 1/2 to 11 3/4; new shares, now quoted 6/- paid, done at 6 1/2, closing 6 1/2-10ths to 6 1/2. Bolckow, Vaughan, 1, done at 47. Emma, 20s. to 22s. Gunnislake (Clitters), 2 1/2, buyers; this mine was never looking so well as at present; the shares should, therefore, rise, looking to the regular and increasing dividends expected. Huntington Down, 2 1/2, buyers. Huntington, done at 1 1/2, closing 1 1/2 to 1 1/2. Penruthal, 1 1/2, buyers. Richmond, done from 5 1/2 to 8, closing 8 to 8 1/2; this week's cablegram says: "Week's run, £58,000. Hoisting suspended part of the week whilst connecting new engine." Russian Copper, lower, at 3 to 3 1/2. South Aurora, 6s. 6d., buyers. Tharsis, done at 20 1/2, closing 20 1/2 to 20 1/2. Tylwyd, lower, at 7 1/2, sellers. Uphill Oil, 4 1/2 to 5. Whitehaven Iron, 3 1/2, buyers. Young's Paraffin, done at 7 1/2, closing 7 1/2 to 7 1/2.

On WEDNESDAY the market was quiet, but steady. Bedford United, 1 1/2, buyers. Benhar, 11 1/2 to 11 3/4; new shares done at 6 1/2, closing 6 1/2 to 6 1/2. Glasgow Cardon, 30s., closing 30s., done at 20s., closing 30s. to 31s. Gunnislake (Clitters) nominally at 3 1/2; there is said to be a little improvement in a rise here, but this is coming upwards, so will only reach to the level above, where it is not so good by a great deal. Huntington Down, 1 1/2, buyers. Huntington done at 27s., closing 27s. to 27s. 6d. Omoea and Cleland done at 5s. Penruthal, 7s. 6d. to 8s. 6d. Prince of Wales, 1s. 6d., buyers. Richmond opened at 7 1/2, fell to 7 1/2, but recovered to 7 1/2, closing at best point—namely, 7 1/2 to 7 1/2; at the ordinary general meeting of the shareholders of this company to be held on the 22nd inst. a dividend of 7s. 6d. per share will be recommended. Scottish Australian new shares (last issue), 1s. 6d. prem., sellers. South Aurora, 6s. 6d., buyers. Tharsis done at 21 and 20 1/2, closing 20 1/2 to 20 1/2. Whitehaven Iron, 3 1/2, buyers. Young's Paraffin, done at 7 1/2, closing 7 1/2 to 7 1/2. Scottish Wagon, done at 10 1/2.

The following are this week's prices of some stocks, shares, &c., occasionally dealt in on this market, but not quoted (with few exceptions) on any of the Scotch Stock Exchanges:—Iron, Steel, and Coal Companies: Andrew Knowles and Sons, 24 to 24 1/2; Bolckow, Vaughan, & Co., "B," 42 to 42 1/2; Britannia Ironworks, 10; Cardiff and Swansea Steam Coal, 2 1/2 to 2 1/2; Chapel House Colliery, 3 1/2 to 3 1/2; Consett Iron Ore, 20%; Gauley Kanawha Coal, 5, sellers; Great Western Colliery, 11 1/2 to 12; Gellydell Colliery, 9, sellers; Ifton Rhyn Colliery, 2 1/2 to 3; Leigh and Wilkes Barre 6 per cent. first mortgage, guaranteed by Central Railroad of New Jersey (U.S.), 92 to 94; Llynny, Tondu, and Ogmore Coal and Iron, 23 1/2 to 24; Llynny Valley Colliery, 9, sellers; Mersey Steel and Iron, 4 1/2 to 5; Mwyndy Iron Ore, 2; Newport Abercarron Colliery, 4 to 6; North Lonsdale Iron and Steel, 6 to 6 1/2; Powell's Llanwit Colliery, 2 1/2 to 3 1/2; Scottish Australian new shares, 3 1/2 to 3 1/2; Ulverstone Mining, 10 1/2 to 11; West Cumberland Iron and Steel, 11 1/2 to 13 1/2; Whitehaven Iron, 3 1/2, buyers. Copper, Lead, Tin, &c., Co.'s: Bedford United, 1 1/2, buyers; Bensberg Lead, 3 to 4; Bowden Hill Mangano, 5, sellers; Cook's Kitchen, 6 to 6 1/2; Copiago Mining and Smelting, 3 1/2; Dolcoif, 40 to 42; Drake Walls, 2 1/2, sellers; East Cardon, 1 1/2 to 2; East Wheal Grenville, 1s. 6d., sellers; Elgar, 1, sellers; Great Laxey, 15 1/2 to 16 1/2; Great West Van, 2 1/2 to 3 1/2; Gunnislake (Clitters), 3 to 3 1/2; Hington Down, 18s., buyers; Kilfret, 1 1/2, sellers; Old Talaroch Lead preference, 10, sellers; Market Valley, 3 1/2, sellers; New Consols, 1 1/2, sellers; New Pembroke, 5, sellers; New Querada, 4; North Hendre Lead, 3 to 4; Parys Mountain, 2 1/2 to 3; Penruthal, 9 to 9 1/2, sellers; Prince of Wales, 1s. 6d., sellers; Plymhill Lead, 2 1/2 to 3; Rio Tinto, 6 1/2; Snowbrook, 5, sellers; South Condurrow, 5 1/2 to 6; South Rosekar, 1 1/2, sellers; Van, 2 to 2 1/2; West Bassett, 4 1/2 to 5; West Esgril Lie, 1, sellers; West Poldice, 16; West Wheal Frances, 8 1/2 to 9; Wheal Bassett, 8 to 8 1/2; Wheal Kitch (St. Agnes), 2 1/2, buyers; Wheal Mary Hutchins, 4; Yorke Peninsula 15 per cent. guaranteed preference, 2 1/2 to 3; Yorkshire Mining, 3-16ths to 4; Gold and Silver Companies: Almada and Trito, 2 1/2 to 3; Argentine, 6 to 6 1/2; Australasian Mines Investment, 2 1/2 to 3; Baye Consols Silver, 5, sellers; Battle Mountain, 1 to 1 1/2; Cedar Creek, 3 1/2 to 4; Chontales, 2 1/2 to 3; Colorado Terrible Lode, 2 to 2 1/2; Don Pedro North del Rey, 2 1/2 to 3; Eberhardt and Aurora, 8 to 8 1/2; Exchequer, 2 1/2 to 3; Frontino and Bolivia, 13 1/2 to 14 1/2; I.X.L., 8; Gold Run, 18s., sellers; Javall, 2 1/2 to 3; Malpaso, 3 1/2; New Pacific, 5; New Zealand Kapanga, 7 to 8; Pestarena Union, 3 1/2; Port Phillip and Colonial, 5 to 5 1/2; Rio, 2 to 4; Santa Barbara (late Par), 18s. 9d. to 20s. 3d.; So. Aurora, 5s. 6d., buyers; Sweetland Creek, 2 1/2 to 3; Tecom, 1 1/2, buyers; Thornhill Reef, 3 1/2; United Mexican, 2 1/2 to 3 1/2; Welsh "Gold," 2; Winter's Freehold, 3 1/2, sellers; Miscellaneous Companies: Aberdeen Lime, 7 1/2; Bede Metal and Chemical, 3 1/2, sellers; British Agricultural Association, 2 to 3; ditto 7 per cent. preference, 5, sellers; Conglog Slat and Slab, 10, sellers; General Sewage and Manure, 4 to 7; ditto 7 per cent. preference, 10, sellers; Native Guano, 3; Newcastle Chemical, 3 1/2, ditto; North Corn. Wall Kailin, 3 1/2, sellers; Phospho-Guano A, 7; ditto B, 2 1/2; Thomas Chemical, 5, sellers; and subjoined are the latest prices, &c., of those quoted on the Stock Exchange:—

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per Paid	Previous.	Last.	COAL, IRON, STEEL.	price.
share.	up.	Previous.	COAL, IRON (Limited) .....	7
£10 ... 26 ... 210 ... £10 ... £10 ...	14 ... 14 ... 9 ...	10 ... 10 ... 9 ...	Benhar Coal (Limited) .....	11 1/2
10 ... 10 ... 6 ...	14 ... 14 ... 9 ...	10 ... 10 ... 9 ...	Ditto .....	4 1/2
100 ... 35 ... 12 1/2 ...	12 1/2 ... 12 1/2 ...	12 1/2 ... 12 1/2 ...	Bolekov, Vaughan, and Co. (Lm.) .....	10 1/2
10 ... 10 ... 10 ...	10 ... 10 ... 10 ...	10 ... 10 ... 10 ...	Calmarling Gas Coal (Limited) .....	5
10 ... 10 ... 5 ...	nil ...	5 ...	Chiltington Iron (Limited) .....	13 1/2
32 ... 29 ... 7 ...	7 ...	7 ...</		

## In the High Court of Justice.

CHANCERY DIVISION.—VICE-CHANCELLOR MALINS.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,  
AND  
IN THE MATTER OF THE CAPE BRETON COMPANY (LIMITED).

**N**OTICE IS HEREBY GIVEN, that Vice-Chancellor Sir RICHARD MALINS has DIRECTED a MEETING to be SUMMONED pursuant to the Joint Stock Companies Arrangement Act, 1870, of the several holders of debentures of the above-named company, or of the debentures or bonds issued by any of the three companies under mentioned, and purporting to constitute a charge upon any properties now vested in the above-named company for the purpose of ascertaining their wishes as to an arrangement proposed between the above-named company and the holders of such debentures or bonds, as aforesaid, with a view to suspending the proceedings in liquidation and carrying on the undertaking of the said Cape Breton Company (Limited), and that such meeting will be HELD on TUESDAY, the 11th day of January, 1875, at Two o'clock in the afternoon, at the City Terminus Hotel, Cannon-street, in the City of London, at which time and place all persons holding debentures of the above-named company, or debentures or bonds issued by any of the three companies under mentioned, and purporting to constitute a charge upon any properties now vested in the Cape Breton Company (Limited), are requested to attend.

The names of such three companies above referred to are—

(1.)—THE GLASGOW AND CAPE BRETON (NOVA SCOTIA) COAL AND RAILWAY COMPANY (LIMITED).

(2.)—THE LORWAY COAL COMPANY, CAPE BRETON (LIMITED).

(3.)—THE SCHOONER POND COAL COMPANY (LIMITED).

The said Judge has appointed Mr. THOS. FENWICK, of 6, Princes-street, in the City of London, Stockbroker, one of the debenture-holders of the Cape Breton Company (Limited) to act as Chairman of such meeting.

S. LOWELL PRICE } Official Liquidators.

D. J. KENNELLY } Official Liquidators.

Dated this 7th day of December, 1875.

N.B.—Any debenture or bond holder who, on or before the 8th day of January, 1876, sends his name and address, and the number and of amounts purporting to be secured by his debentures or bonds, respectively to SAMUEL LOWELL PRICE, of 13, Gresham-street, in the City of London, one of the Official Liquidators of the above-named Cape Breton Company (Limited), will have sent to him a printed form of proxy duly stamped; and also a print of the resolution which has been suggested by the Vice-Chancellor as embodying the points upon which he desires to be informed of the wishes of such debenture or bond holders.

CO-OPERATIVE CREDIT BANK,  
MANSION HOUSE CHAMBERS,

11, QUEEN VICTORIA STREET, E.C.

First issue of capital: £500,000, in subscriptions of £10 and upwards.

Interest in lieu of dividend 18 per cent. per annum, paid monthly.

Current accounts opened, and 5 per cent. interest allowed on the minimum monthly balances.

## CHEQUE BOOKS SUPPLIED.

The Bank transacts every description of sound financial business. Book-keeping in the hands of the subscribers, and a quarterly balance sheet issued by auditors appointed by them, independent of the management.

For particulars apply to— R. B. OAKLEY, Manager

## G. E. SIMISON, OF NO. 6, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C., INVITES APPLICATIONS FOR SHARES IN

## THE CROWN FIRE INSURANCE COMPANY, LIMITED.

Incorporated under the Companies Acts, 1862 and 1867.

Capital £1,000,000, in 200,000 Shares of £5 each, with power to increase.

First issue of 10,000 shares, payable as follows:—£1 on application, £1 10s. on allotment.

Further calls, not exceeding £1 per share, at intervals of not less than three months.

## PRESIDENT.

The Hon. FREDERICK WALPOLE, M.P., Rainthorpe Hall, Norfolk.

## DIRECTORS.

Sir HENRY GOOLE, Bart., West Croydon, Surrey.

The Hon. O. G. LAMBART, 7, Albemarle-street, W.

F. GARLAND MYLREA, Esq., 41, Redcliffe Gardens, South Kensington.

Lieutenant-Colonel C. G. PERCEVAL, 1, Whitehall Gardens, S.W., and Uphill House, Mill Hill, N.W.

Major A. B. S. SHAIRP, The Woodlands, Isleworth, Middlesex.

Sir AUGUSTUS WEBSTER, Bart., Hildon House, Stockbridge.

W. H. WEBSTER, Esq. (Messrs. Armstrong and Webster), 71 and 75, Great Tower-street, E.C.

## SOLICITORS.

Messrs. SUMMERLIN and HERITAGE, Sise Lane, Queen Victoria-street, E.C.

## BANKERS.

METROPOLITAN BANK, CORNHILL, E.C.

## AUDITORS.

Messrs. T. RUSSEL and CO., 8, Leadenhall-street, E.C.

## MANAGER.

Mr. JOHN STEDWELL DRAKE.

HEAD OFFICES,—9, GREAT WINCHESTER STREET, E.C.

## SHARE PROSPECTUS.

The Crown Fire Insurance Company (Limited) is formed for the purpose of extending facilities for the insurance of property against loss or damage by fire, more especially as regards merchandise, buildings, mills, manufactures, farming stock, &amp;c.

That there is ample room for a new fire office may be assumed from the fact that it has been proved before Parliament, and has been abundantly confirmed by statistics, that two-thirds, amounting to £3,000,000,000 sterling, of the destructive property of the United Kingdom is not covered by fire insurance, and this description of property is increasing at the rate of £200,000,000 annually. Consequently there is ample field for the safe and profitable investment of capital in this direction.

The leading feature of the Crown Fire Insurance Company (Limited) will be the fixing of premiums at rates adequate to the risks to be incurred. The company will not be bound by any tariff.

That the Crown Fire Insurance Company (Limited) may further enlist the confidence of the public, gentlemen of undoubted standing and integrity will be selected as directors, both for the head office and local boards. No promotion money will be paid, and the business will be conducted with due regard to economy.

The approximate annual fire premiums, after deducting re-insurance, collected by the insurance offices of the United Kingdom, amount in the aggregate to over seven and a half millions, independent of amounts collected by foreign offices.

It is well known that fire insurance is a highly profitable business, the dividend in companies properly managed exceeding 65 per cent. The shares of well-managed offices have increased in value from 1000 to 7000 per cent.; consequently fire offices are amongst the soundest and best of investments.

## SPECIAL FEATURES.

The directors have determined to offer facilities to the public to effect permanent insurances by single payments on such classes of risks as they may at their option consider advisable to accept, and they anticipate this mode of insuring will meet with considerable success, and in a great measure remedy an inconvenience frequently caused to the insured by ordinary policies being allowed inadvertently to lapse.

Actual realised profits will be insured under special policies, thus enabling merchants and others, who are at present unable to cover such profits by ordinary policies, to protect their own and clients' interests.

## BUSINESS.

This company will insure every description of property against loss or damage by fire, the rates of premium being regulated, irrespective of the Tariff Association, and made dependent on the nature of the buildings and trades carried on therein, commencing at 1s. 6d. per cent.

Household furniture, in first-class private houses, insured at 1s. 6d. per cent.; if including musical and mathematical instruments, china, glass, pictures, and prints, 2s. per cent.

Mills, sugar refineries, distilleries, tanneries, manufactures, and their contents insured.

## Special risks on favourable terms.

Farming stock—implements, machinery, live stock, and agricultural produce insured. N.B.—Use of steam threshing machine allowed.

All claims insured will be paid for if killed by lightning.

Losses settled with promptitude and liberality.

Lightning and Gas.—Losses caused by explosion of coal gas taking place within the building insured with the company, and losses occasioned by lightning, will be made good when the property insured has been actually set on fire thereby.

Ships in harbour, river, canal, wet dock, or basin, and goods therein, may be insured at moderate rates.

Short period insurances granted. Person insuring for six years are only charged for five.

Rents insured during re-building of premises damaged by fire, not exceeding one year's rent.

Transfers.—Parties insured with other companies can have their insurances transferred to this office, free of expense, on sending their policies and last renewal notices.

Policy stamps paid for the company.

No charge made for policies.

Prospectuses, forms of proposals, and all information may be obtained on application at any of the offices or agencies of the company.

Arrangements have been made by which a large amount of business will be secured to this company.

Applications for shares, accompanied with a remittance of £1 per share, should be sent to the company's bankers; to the head office; or to Mr. G. E. SIMPSON, No. 6, Great Winchester-street Buildings, London, E.C.

IN LIQUIDATION.  
VALUABLE MINING PROPERTY IN DEVONSHIRE.  
FOR SALE, BY AUCTION.

By Order of His Lordship Vice Chancellor Malins.

## IN THE MATTER OF THE LIQUIDATION OF THE CORNISH CONSOLIDATED IRON MINES CORPORATION (LIMITED).

IN CONSEQUENCE of the sudden decease of Mr. WM. NORRIS, Mr. E. T. FULFORD will hold the AUCTION as advertised on THURSDAY, December 23rd, 1875, for the SALE of those VALUABLE IRON MINES, known as the HENNOCK MICACEOUS SETT and the SOUTH EXMOUTH SPATHOSE and LEAD SETT, situate in the parish of HENNOCK. Exeter, December 10th, 1875.

IN LIQUIDATION.  
VALUABLE MINING PROPERTY IN DEVONSHIRE.  
FOR SALE, BY AUCTION.

By order of His Lordship Vice Chancellor Malins.

## IN THE MATTER OF THE LIQUIDATION OF THE CORNISH CONSOLIDATED IRON MINES CORPORATION (LIMITED).

Official Liquidator, FREDERICK WINNEY, Esq., 5, Old Jewry, London, E.C. M. R. E. T. FULFORD is instructed to SELL on THURSDAY, December 23rd, 1875, at Three o'clock precisely, on the premises, in One or more Lots, as may be determined upon at the time of sale, all those VALUABLE IRON MINES, known as

## THE HENNOCK MICACEOUS SETT,

And the SOUTH EXMOUTH SPATHOSE and LEAD SETT, situate in the parish of Henock, in the county of Devon, and held by the Cornish Consolidated Iron Mines Corporation (Limited), under a grant to them for a term of 42 years, of which 30 are now unexpired, together with all the PLANT, MACHINERY, GEAR, and all thereon belonging or appertaining.

Full particulars, with conditions of sale, will be published on Thursday, the 16th December, and may then be obtained on application to the Auctioneer, at Maddock's-row, Exeter; from Mr. J. O. HARRIS, of Gandy-street Chambers, Exeter; from the Official Liquidator, at his office aforesaid; or from Messrs. COPE, ROSE, and PEARSON, Solicitors, 26, Great George-street, Westminster.

## CORNWALL.

SALE OF VERY VALUABLE MINERAL AND OTHER PROPERTY.  
INCLUDING PART OF the DUES from WEST CHIVERTON, &c.

A AUCTION WILL BE HELD, BY MR. THOMAS R. OLVER, At the Royal Hotel, Truro, on the 12th January, 1876, at Three o'clock in the afternoon, for SELLING, subject to the conditions to be produced, the

## LIFE INTEREST OF A GENTLEMAN.

Aged about 28 years, in various properties, embracing, amongst other lots—

LOT 1.—ONE-SIXTH of the MINES and MINERALS under the Manor of Ventongimp, in Perranzabuloe, Cornwall. The celebrated West Chiverton Mine (from which the owner of the one-sixth, now offered for sale, has received on the average upwards of £500 per annum as dues) is in Ventongimp, as are also the mines formerly known as Great South Chiverton, Wentworth Consols, and part of Chiverton Moor.

LOT 4.—ONE-SIXTH of certain MINERALS in the Manor of Goonearle, in St. Agnes, Cornwall. The sets now or formerly known as North Treskerby, Wheal Rose, East Downs, Wheal Briton, and others are situated in Goonearle.

LOT 5 includes portions of the MINERALS in Chilly and Chyddeden, Trevaunance, Bolster, Trewartha, and Towan, in St. Agnes. The sets now or formerly known as St. Agnes Consols, Wheal Charlotte, Wheal Towan, &amp;c., are either wholly or in part within the above estates.

For further particulars, application should be made to Messrs. OLVER and SONS, Auctioneers and Land Valuers, Falmouth; or to Messrs. STONE, KING, and KING, Solicitors, Bath; or to Messrs. PETGRAVE and HODGKINSON, Solicitors, Bath; or to Mr. KILVERT BARTRUM, Solicitor, Bath; or at the offices of S. T. G. DOWNING, Solicitor, Redruth.

Dated November 22nd, 1875.

SHARES IN A CELEBRATED MINING PROPERTY  
IN CHILI,  
YIELDING LARGE PROFITS, FOR SALE.

TO BE SOLD, BY AUCTION, at the Mart, Tokenhouse-yard, in the City of London, on Tuesday, the 23rd day of May, 1876, at Two o'clock precisely, by Messrs. DRIVER, in One or more Lots,

THREE SHARES (in Chili designated Bars) in the CARRIZALLO MINING COMPANY. The company is divided into 24 shares only.

The CARRIZALLO COMPANY own the celebrated DESCUBRIDORA MINE, and the three adjoining sets of SAN JUAN, CANCHAS, and SAN FRANCISCO, which are all worked under one administration, and are situated about thirty-three miles from the Port of Pan de Azucar, from whence there is a good road.

The DESCUBRIDORA MINE has been working since 1859, and has yielded large profits. There are two steam-engines at work, one of 20-horse power and one of 8-horse power, for drawing, and there is also a newly-erected powerful engine, with Blake's crusher attached; by the use of the latter the company is enabled to dress and return the large accumulation of low-produce ore, which will now give considerable profit. The mine is in a thorough working order, and well stocked with materials, rails, jiggers, crushers, &amp;c.

The adjoining sets of SAN JUAN, CANCHAS, and SAN FRANCISCO were acquired for the purpose of securing the ground around the Descubridora Mine, and they have since been worked on a limited scale. There is also a shop, which supplies the workpeople, and also horses, carts, and mules.

Also the VEGA WASHING AND JIGGING ESTABLISHMENT, with yards, houses, shop, and stores, about nine miles from Descubridora (a tramroad is being laid down from the mine, which will greatly lessen the costs of carriage to the Vega). There are also dwelling-houses, bake-house, yards, store-rooms, ore-floors, and mole at Pan de Azucar, with convenient launches for use in loading ships with the ore; and there also belong to the company a quinquehpice establishment, a watering place, situated about eleven miles from Pan de Azucar, on the road to Descubridora, with dwelling-house, shop, store, mule yard, water-carts, mules, and harness; and in Chanaral a dwelling-house of eight rooms, and spacious balcony and store below, with good counting house.

The company also have at Chanaral other houses and sites, and also a complete condensing apparatus, with four boilers, &amp;c.

Two-thirds of Descubridora, San Juan, Canchas, and San Francisco, with some other property of comparatively small value, were sold in 1872 for the aggregate sum of £50,000, and since then profits have been divided much more than sufficient to repay the purchase-money, and there is every prospect of Descubridora continuing to give large profits for a considerable time.

Printed conditions of sale will be shortly ready, and further particulars can be obtained in Chili from ROBERT PEEBLES, Esq., Chanaral, Chili; and in England from Messrs. DRIVER, the Auctioneers, Whitehall, London; or of S. T. G. DOWNING, Solicitor, Redruth, Cornwall.

## THE HENDON SPELTER WORKS.

TO CAPITALISTS, PROMOTERS OF PUBLIC COMPANIES, & OTHERS.  
FOR SALE, in consequence of the Death of the late Senior

PARTNER, John Candalish, M.P., the SPELTER WORKS, situated at Hendon, in the borough of Sunderland, in the county of Durham, carried on under the style of "THE HENDON SPELTER COMPANY."

The works are situated within one mile of the well-known docks of the port of Sunderland, and adjoining the Hartlepool Branch of the North Eastern Railway, with which they are connected by high and low level sidings, and thereby placed in communication with all parts of the United Kingdom. Their position, within easy distance of both the ports of Newcastle and Sunderland, is very advantageous for the cheap importation of raw material, as also the forwarding of the manufactured article either by land or sea.

The ground on which the works are built can be either bought out or bought on a yearly perpetual ground rent, and any quantity under 20 acres can be included in the sale.

Being situated in the midst of the Durham Coal Field fuel of the best description can be obtained at a cost below almost any other part of the United Kingdom. There are 19 workmen's cottages, which can be bought with the works.

The works contain 24 zinc furnaces, capable of producing 70 tons of metal a week, as also calciners, potlofts, machinery, blacksmiths' and joiners' shops, &amp;c., of sufficient capacity for a much larger number. The works can, therefore, be doubled at a comparatively small cost.

The quality of the metal made at these works is well known, and it, therefore commands a ready sale at the highest prices.

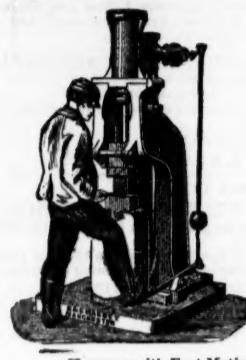
Attached to the high level sidings are large depots for coal, ore, &amp;c.

The goodwill would, of course, go with the works, and they will be sold subject to all stock being taken at a fair market value.

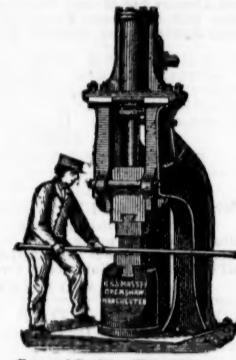
# B. & S. MASSEY, OPENSHAW, MANCHESTER.

PRIZE MEDALS Awarded:—Paris, 1867; Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873; Scientific Industry Society, 1875. Leeds, 1875.

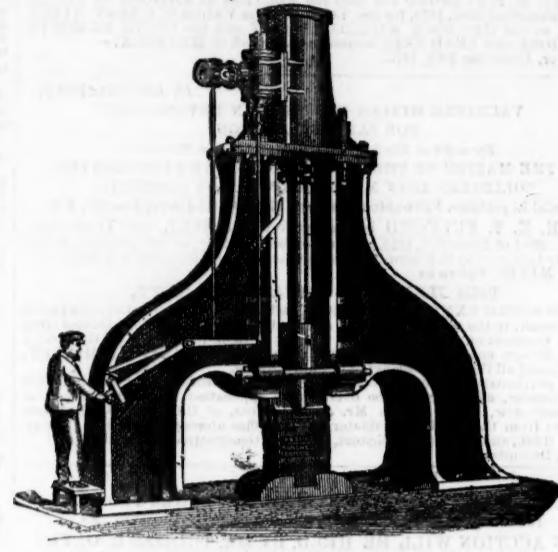
Patentees and Makers of Double and Single-acting STEAM HAMMERS of all sizes, from  $\frac{1}{2}$  cwt. to 20 tons, with self-acting or hand motions, in either case giving a perfectly DEAD BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers, working up to 500 blows per minute, in some cases being worked by the Foot of the Smith, and not requiring any separate Driver.



Hammer with Foot Motion.

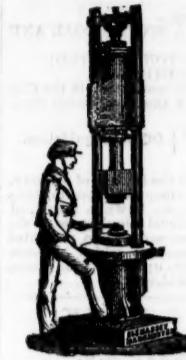


General Smithy Hammer.



Steam Hammer for Heavy Forgings.

SPECIAL STEAM STAMPS, for Forging, Stamping, Punching, Bolt-making, &c. STEAM HAMMERS for Engineers, Machinists, Ship-builders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for Use in Repairing Smithies of Mills and Works of all kinds for straightening Bars, bending Cranks, breaking Pig-iron, &c.



Special Steam Stamp.



General Smithy Hammer.

From 60 to 100 Steam Hammers and Steam Stamps may usually be seen in construction at the Works.

## THE "CHAMPION" ROCK BORER, For Tunnels, Mines, Quarries AND OTHER WORKS.



The "CHAMPION" Rock Borer has been designed after years of experience of other Rock Drills; it surpasses them in their good qualities, and avoids their imperfections, and while being of the very best make and material, it is absolutely the cheapest in the market.

Intending purchasers can satisfy themselves of the excellence of this Rock Borer by seeing it in actual operation.

## Improved Air-Compressors, &c.

ULLATHORNE & CO.,  
METROPOLITAN BUILDINGS,  
62, QUEEN VICTORIA STREET, LONDON, E.C.

Prize Medal—International Exhibition, 1862.



CHAPLIN'S PATENT  
PORTABLE STEAM ENGINES  
FOR PUMPING AND WINDING.  
SPECIALY ADAPTED FOR PITS, QUARRIES, &c.  
SIMPLE and STRONG; requires NO FOUNDA-  
TION or CHIMNEY STALK, and are  
EASILY ERECTED or REMOVED.  
Sizes, from 2 to 30-horse power.

Steam Cranes, 1½ to 30 tons, for railways, wharves, &c.; hoist, lower, and turn round in either direction by steam.

Stationary Engines, 1 to 30-horse power, with or without gearing.

Hoisting Engines, 2 to 30-horse power, with or without jib.

Contractors' Locomotives, 6 to 27-horse power.

Traction Engines, 6 to 27-horse power.

Ships' Engines, for winding, cooking, and distilling passed by H.M. Government for half water.

Steam Winches. Engines and Boilers for light screw and paddle steamers.

WIMSHURST, HOLLICK, & CO.,  
ENGINEERS.

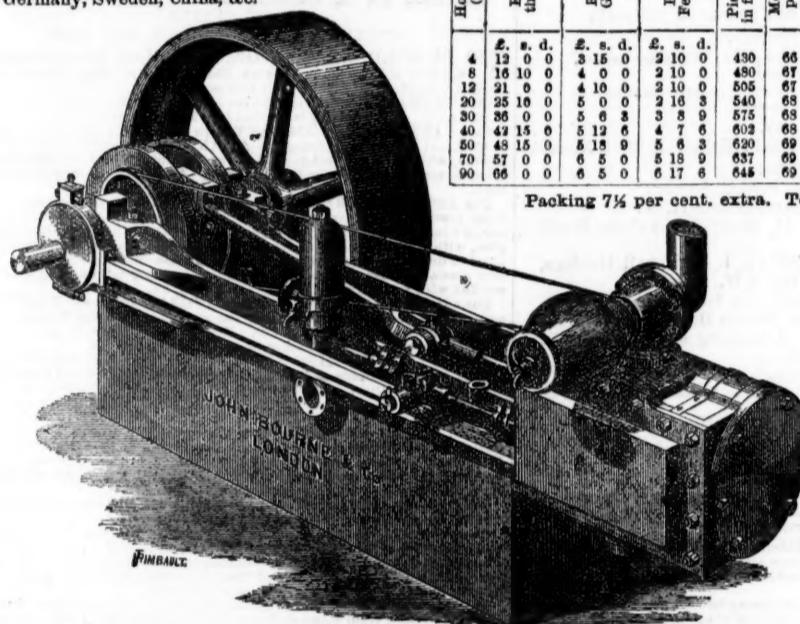
CITY OFFICES: 34, WALBROOK, LONDON, E.C.  
WORKS: REGENT'S CANAL DOCK, 602, COMMERCIAL ROAD EAST,  
LONDON, E. [near Stepney Station.]

## BOURNE'S PATENT BALANCED High-Pressure High-Speed Engines.

THE BEST AND CHEAPEST SMALL ENGINES MADE.

These engines have just been awarded a Silver Medal at the Manchester Exhibition, and about 1800 H.P. of them have been sold in a few months to North and South America, New Zealand, Australia, the Cape, Russia, Spain, Portugal, France, Germany, Sweden, China, &c.

Horse-power (actual).	PRICES.		
	Engines at the Works.	Extra for Governor.	Extra for Feed-Pump.
4	£ 15 s. 0 d.	£ 2 s. 0 d.	430
8	16 10 0	3 15 0	480
12	21 6 0	4 10 0	505
20	28 16 0	5 0 0	540
30	36 0 0	5 6 0	575
40	42 15 6	5 12 0	602
50	45 15 0	5 15 9	620
70	57 0 0	5 5 0	637
90	66 0 0	6 5 0	645
		6 17 6	69
			Two boilers.
			Two boilers.
			Packing 7½ per cent. extra. Terms, Cash.
			Mean pressure per sq. in. on piston.
			Tubular Boiler.
			Extra for Mounting.



From ANDREW LAMB, Esq., Superintending Engineer, P. and O. Steam Co.

Peninsular and Oriental Steam Navigation Company, Southampton, March, 1875.

I have carefully examined your Patented High-Pressure High-Speed Steam-Engine. Knowing as I do how many improvements in the steam-engine you have inaugurated during the last forty years, which have been silently adopted and are now in general use, it does not surprise me that you have again made a happy hit, and brought out an engine which exactly meets one of the most pressing wants of the day. The speed and pressure of your engine are greater than is usual in other engines; but with a due proportion of rubbing surface, nothing in the way of undue wear is to be apprehended from the speed, and boilers and engines can easily be made strong enough to bear almost any pressure with safety. The indicator diagrams are very good, and they show that though the engine is small it generates the power. Your invention of balancing the momentum of the moving parts, already adopted in the best engines for steam navigation, enables engines to be run at almost any speed without inconvenience, if well constructed in other respects; and in your present engine you have embodied the best engineering knowledge of the age, with the addition of several features of originality and importance. While, then, the disadvantages of your engine are *nil*, its advantages are great and manifest. A high pressure and high speed render possible large expansion, with a great saving both in coal and water. Then the motion is more equable than in common engines, and the weight of machinery and the space occupied by it are small. The most remarkable feature, however, is the wonderful reduction of first cost which your system permits; and people will now have engines who before thought them quite beyond their reach. Their production, as I understand, you have reduced to a manufacture. To sum up the whole in a few words, you have, in my opinion, brought out a machine long wanted, and likely to produce a revolution in that class of engine, as it can be adapted for almost any purpose.

ANDREW LAMB.  
To John Bourne, Esq., C.E., Author of "A Treatise on the Steam-Engine," "A Catechism of the Steam-Engine," &c., &c.

Balanced Compounds for Pumping and Winding, for Mills, &c., equally moderate.

JOHN BOURNE AND CO., 66, Mark Lane, London.

## N. HOLMAN AND SONS, BRASS AND IRON FOUNDRIES AND ENGINE WORKS, PENZANCE AND ST. JUST, CORNWALL, Sole Makers of Stephens's Improved Patent Pulveriser, FOR REDUCING TIN ROUGHS, LEAD SKIMPINGS, AND OTHER ORES.

The advantages possessed by these machines over others are—

- 1.—THE CHEAPNESS.
- 2.—THE SIMPLICITY OF CONSTRUCTION.
- 3.—THE DURABILITY OF THE WEARING PARTS.
- 4.—THE QUANTITY OF STUFF PULVERISED.

MACHINES MADE SPECIALLY FOR EXPORTATION.

For prices, testimonials, and further particulars, apply to N. H. and Sons, Sole Makers, at the above address, or to our London Agent below.

N.B.—Any person or persons infringing on the patent or manufacture of these machines, or any part thereof, will be prosecuted under the Act.

Estimates given for all classes of Mining Machinery, &c., for home and foreign supply.

ORDERS PROMPTLY ATTENDED TO.

London Agent—Mr. J. COATES, 33, Frederick Street, Gray's Inn Road, London, W.C.

## NOBEL'S DYNAMITE

Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks, its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMPING, absence of smoke, unaffected by damp, &c.

For information, apply to the—

BRITISH DYNAMITE COMPANY (LIMITED), GLASGOW;

OR AT THE

London Export Office, 85, GRACECHURCH STREET, LONDON, E.C.

## THE DARLINGTON ROCK BORER.

No VALVE—BLOW obtained by the movement of the PISTON.

IN USE IN FRANCE, GERMANY, SPAIN, AND ELSEWHERE.

Rock Borers, Air Compressors, and Electric Blasting Apparatus.

Sole Agents and Manufacturers for France.—The Blanzy Mining Company,

WHERE BORERS MAY BE SEEN IN OPERATION.

For letter of introduction, particulars, &c., apply to—

JOHN DARLINGTON,  
2, COLEMAN STREET BUILDINGS, MOORGATE STREET, LONDON.

## MINING MACHINERY AND TOOLS.

### THE TUCKINGMILL FOUNDRY COMPANY,

85, GRACECHURCH STREET, LONDON, E.C. WORKS: TUCKINGMILL.

MANUFACTURERS of every description of MINING MACHINERY, TOOLS, MILLWORK, PUMPING, WINDING, & STAMPING ENGINES.

SOLE MAKERS OF

BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.

PRICE LISTS CAN BE HAD ON APPLICATION, AND

SPECIAL QUOTATIONS WILL BE GIVEN UPON INDENTS AND SPECIFICATIONS.

TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS

TUCKINGMILL, CORNWALL, AND 85, GRACECHURCH STREET, LONDON, E.C.

## ARTESIAN BORINGS,

For WATER SUPPLY to TOWNS, LAND IRRIGATION, and MINERAL EXPLORATIONS, may be executed of any diameter, from 6 in. to 36 in., and to any depth to 2000 ft.

Pistons & Air-pump Buckets fitted with Patent Elastic Metallic Packing

of which upwards of 8684 have been made to March, 1875.

MATHER AND PLATT,

MAKERS OF LARGE PUMPS AND PUMPING ENGINES.

Improved Valves and Taps for Water, Steam, Gas, &c.

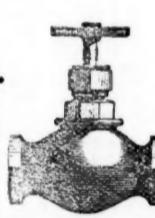
PATENT STEAM EARTH-BORING MACHINE

ENGINEERS and MACHINE MAKERS to CALICO PRINTERS, BLEACHERS, DYERS, and

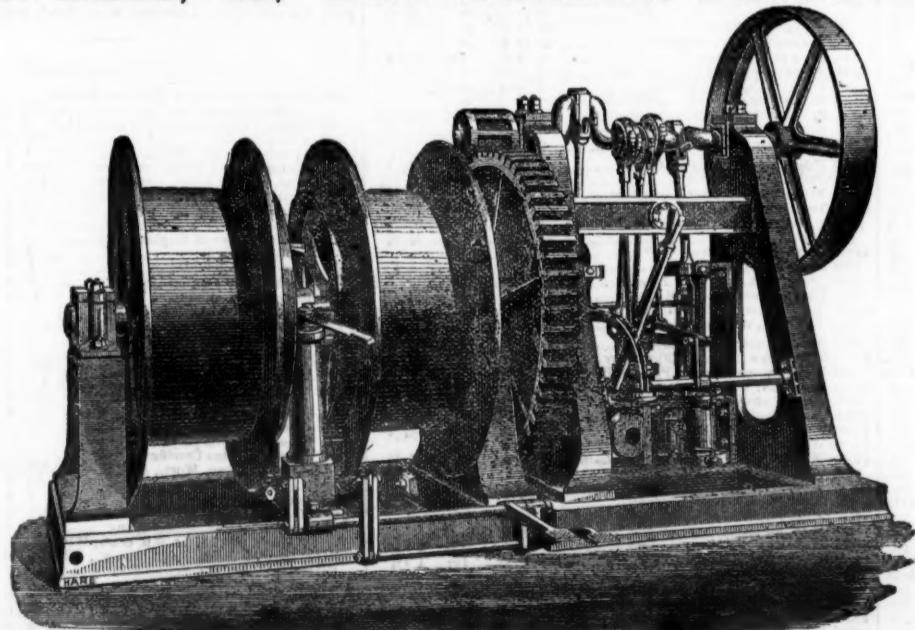
FINISHERS.

SALFORD IRONWORKS, MANCHESTER.

PRICES AND PARTICULARS ON APPLICATION.



## I. G. BASS, 18, BOW STREET, SHEFFIELD.



IMPROVED DESIGN of Engine for HAULING, for use with either Steam or Compressed Air.

Takes less room, and can be supplied for less money, than any other Engine of same power.

May also be had with single drum for winding.

BICKFORD'S PATENT  
FOR CONVEYING  
CHARGE IN



SAFETY FUSE,  
FIRE TO THE  
BLASTING ROCKS, &c.

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION," in Dublin, 1866; at the "UNIVERSAL EXPOSITION," in Paris, 1867; in the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.

BICKFORD, SMITH AND CO.,  
of TUCKINGMILL, CORNWALL; ADELPHI  
BANK CHAMBERS, SOUTH JOHN-STREET, LIVER-  
POOL; and 85, GRACECHURCH-STREET, LONDON,  
E.C., MANUFACTURERS AND ORIGINAL  
PATENTEES of SAFETY-FUSE, having been in-  
formed that the name of their firm has been attached to  
fuse not of their manufacture, beg to call the attention of  
the trade and public to the following announcement:

EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE  
THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICK-  
FORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS AS  
THEIR TRADE MARK.

BENNETT'S SAFETY FUSE WORKS,  
ROSKEAR, CAMBORNE, CORNWALL.

BLASTING FUSE FOR MINING AND ENGINEERING  
PURPOSES,

Suitable for wet or dry ground, and effective in Tropical or Polar Climates.

W. BENNETT'S, having had many years experience as chief engineer with  
Messrs. Bickford, Smith, and Co., is now enabled to offer Fuses of every variety of  
his own manufacture, of best quality, and at moderate prices.

Price Lists and Sample Cards may be had on application at the above address.

LONDON OFFICE.—H. HUGHES, Esq., 85, GRACECHURCH STREET.

THE TAVISTOCK IRONWORKS, ENGINEWORKS  
FOUNDRY, AND HAMMER MILLS,  
TAVISTOCK, DEVON.

NICHOLLS MATHews, AND CO.  
ENGINEERS, BRASS AND IRON FOUNDERS,  
BOILER MAKERS AND SMITHS.  
MAKERS OF

CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM  
CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK;  
SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY  
DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVIL, and other WHEELS, of any dia-  
meter up to 12 feet, made by Scott's Patent Moulding Machine, without the  
aid of patterns, and with an accuracy unattainable by any other means.  
MACHINERY? or FOREIGN MINES carefully prepared.  
SECONDHAND MINING MACHINERY, in good condition, always on sale  
at moderate prices.

ENGLISH TIN, AND HOW TO COMPETE SUCCESSFULLY  
WITH AUSTRALIA.

### USE DYNAMITE.

Invaluable for BLASTING the HARDEST and WETTEST ROCK; SAFER to  
USE; and EFFECTS a GREAT SAVING of time and money.

Pamphlets free by post. An experienced man sent underground to give in-  
structions when necessary, free of charge.

Apply.—STEPHEN WILLIAMS, CAMBORNE.

THOMAS TURTON AND SONS,  
MANUFACTURERS OF

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## THE MINING SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Total divs.	Per share.	Last paid
15,000 Alderley Edge, c. Cheshire*	10 0 0	—	—	—	12 6 8.	0	Jan. 1875
11,000 Balmynhever, c. Wendron (4000 to ls.)	1 0 0	—	—	—	0 2 0.	0	Nov. 1875
30,000 Bantryline, c. m., m., Devon	1 0 0	—	13 14	13 14	0 2 0.	0	Nov. 1875
200 Estlock, t, c. St. Just	13 8 0	45	40 60	61 18 0.	0 6	2 0.	June 1875
10,000 Eronseyd, * s-l, Cardigan	7 7 6	—	—	—	2 2 0.	0	Aug. 1875
40,000 Brookwood, c. Buckfastleigh	1 16 0	—	—	—	0 2 0.	0	Jan. 1875
3248 Carrol, s-l, Newlyn	5 13 0	1	3 34	3 34	0 2 0.	0	Nov. 1875
6400 Cawhill, c. Cumberland	2 10 0	—	—	—	1 16 2.	0	12 6. Oct. 1875
10,000 Caw Brea, c. Illogan	3 6 0	4	40	37 1/4 40	0 6	1 9 6.	0 Aug. 1875
6000 Cath. & Jane, t, Penrhynedraeth	5 0 0	—	—	—	0 7 6.	0	Feb. 1874
2450 Crook's Kitchen, t, Illogan	21 9 9	6	814 6	11 17 0.	0	6 7.	June 1875
10,540 Devon Gt. Consols, c. Tavistock*	1 0 0	5	4 43	11 16 10.	0	10 0.	May 1875
4,256 Duloe, c. Camborne	10 14 10	42	40 42	107 18 0.	0	10 0.	Nov. 1875
6500 Drake Walls, t, c. Calstock	6 0 0	1	1 13	0 2 0.	0	2 0.	Oct. 1875
10,000 East Balleswieden, t, Sandre	1 0 0	—	—	—	0 2 1.	0	Aug. 1875
6144 East Cardon, c. St. Cleer	2 14 6	13	13 17	14 19 0.	0	2 0.	Feb. 1874
800 East Darren, t, c. Cardiganshire	32 0 0	20	26 20	231 10 0.	0	1 0.	Nov. 1875
1500 East Wheal Lovell, t, Wendron*	9 9 9	14 6	13 14	14 2 0.	0	4 6.	Nov. 1875
2500 Foxdale, t, Isle of Man*	35 0 0	7	6	81 15 0.	0	7 6.	Oct. 1874
40,000 Glasgow Cara, * (30,000 £1 p.) 10,000 £16s. p.)	—	—	—	8 15 0.	0	10 0.	Sept. 1875
18,000 Great Laxey, t, Isle of Man	4 0 0	—	—	0 8 4.	0	1 0.	Sept. 1875
28,000 Great West Van, t, Cardigan	2 0 0	—	3 1/2	18 13 0.	0	10 0.	Oct. 1875
6,608 Great Wheal Vor, t, c. Belston*	41 2 6	3 1/2	3 1/2	19 6 0.	0	1 0.	Aug. 1874
6400 Green Burth, t, Durham	6 0 0	—	—	0 3 0.	0	2 0.	July 1874
20,000 Grogwynion, t, Cardigan	2 0 0	—	4	1 12 0.	0	4 0.	Oct. 1874
6530 Gunnislake (Clitters), t, c.	5 5 0	13 1/2	13 1/2	0 3 0.	0	1 0.	Aug. 1875
1024 Herodfoot, t, near Liskeard	7 0 0	3	3 1/2	62 5 0.	0	18 0.	Oct. 1875
18,000 Hindston Down, c. Calstock*(Elsh.)	2 5 0	1	7 1/2	4 4 0.	0	1 0.	Oct. 1875
25,000 Killaloe, t, Tipperary	1 0 0	—	—	0 3 1/2	0	8 0.	Mar. 1875
400 Lisburne, t, Cardiganshire	18 15 0	35	50 55	57 10 0.	1	0 1 0.	Nov. 1875
812 Lovell, t, Wendron	0 10 0	—	—	0 17 6.	0	1 6.	Jan. 1875
11,000 Melinlour Valley, t, Cardigan	3 0 0	2	2 3	0 1 2.	0	8 7.	Jan. 1875
9,000 Minera Mining Co., t, Wrexham	5 0 0	8	5 6	64 4 2.	0	3 0.	Nov. 1875
20,000 Mining Co. of Ireland, c. d., c. t.	7 0 0	—	—	0 8 0.	0	3 6.	July 1875
12,000 North Hendre, t, Wales	2 10 0	—	—	0 12 0.	0	10 0.	Oct. 1875
2,000 North Levant, t, c. St. Just	12 2 0	2	13 2	4 13 0.	0	12 0.	Sept. 1875
9265 Old Treburret, t, ordinary shares	1 0 0	—	—	0 9 0.	0	9 2.	Feb. 1874
9350 Old Treburret, t, (10 per cent. pref.)	0 10 0	—	—	0 1 4 0.	0	6 7.	July 1874
500 Pedan-a-drea, t, Redruth	9 17 0	5	5 6	0 5 0.	0	8 0.	July 1874
4,5783 Penfistul, t, c. Gwenwynap	8 0 0	2	13 2	3 13 6.	0	2 0.	July 1875
6000 Phoenix, t, c. Linkinhorne	2 0 0	—	3 1/2	0 2 8.	0	8 0.	Nov. 1875
1772 Polterro, t, St. Agnes	13 4	—	—	38 19 10.	0	4 8.	Nov. 1875
18,000 Prince Patrick, * s-l, Holywell	1 0 0	—	—	1 12 6.	0	5 0.	Oct. 1875
1120 Providence, t, Lelant	16 16 7	3 1/2	2 1/2	0 12 9.	0	1 2.	Oct. 1875
12,000 Roman Gravels, t, Salop	7 10 0	12	12 12	5 7 6.	0	8 6.	Sept. 1875
812 South Cardon, t, St. Cleer	1 5 0	—	140	120 140	0	7 24.	Sept. 1875
6,000 South Carn Brea, t, Illogan	12 13 6	13	13 15	72 4 0.	0	2 0.	Nov. 1875
613 South Conduor, t, Camborne	6 5 6	8	5 1/2	0 10 0.	0	2 6.	July 1875
6000 South Darren, t, Cardigan	6 5 6	8	5 1/2	1 12 6.	0	5 0.	Oct. 1875
10,000 Sp. Fr. Patrick, t, (5,000 sh. issued)	1 0 0	—	—	1 16 0.	0	1 8.	Oct. 1875
6,000 Tincraft, t, Pool, Illogan	6 0 0	—	—	6 0 0.	0	2 0.	Apr. 1875
4,000 Trumpet Consols, t, Helston	9 0 0	22	20 21	48 13 6.	0	3 0.	Sept. 1875
12,000 Tyllwyd, * s-l, Cardigan	7 10 0	—	5 1/2	9 11 0.	0	10 0.	Sept. 1875
15,000 Van, t, Linkinhorne	4 8 0	29	18 30	15 18 6.	0	14 0.	Oct. 1875
512 West Tolgus, c. Redruth	12 10 0	18	18 18	83 10 0.	0	12 6.	Dec. 1875
904 West Wheal Frances, t, Illogan	95 10 0	53	56 60	9 15 0.	0	1 5 0.	Oct. 1875
512 Wheal Bassett, c. Illogan	27 3 9	83 1/2	83 9	3 12 6.	0	8 0.	Oct. 1875
2045 Wheal Jane, t, Kew	7 2 6	—	—	63 10 0.	0	1 10 0.	Aug. 1875
4295 Wheal Kity, t, St. Just	2 13 10	3 1/2	3 1/2	11 8 0.	0	5 0.	Oct. 1875
80 Wheal Owles, t, St. Just	8 4 6	3	2 1/2	11 19 6.	0	6 2.	Dec. 1875
6,000 Wheal Prussia, t, St. Just	86 5 0	180	120 140	52 10 0.	0	4 0 0.	Aug. 1872
12,000 Wheal Russell, t, Tavistock	2 0 0	—	—	0 3 0.	0	2 0.	Dec. 1872
25,000 Wicklow, c. s-l, Wicklow	1 0 0	—	—	0 3 0.	0	0 6 0.	Nov. 1874
10,000 Wye Valley, t, Montgomery	2 10 0	—	—	89 9 0.	0	2 2 0.	Mar. 1875
3 0 0	—	8 1/2	8 1/2	0 6 0.	0	8 0.	Aug. 1875

## FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last C. all.
85,600 Alamillos, t, Spain*	2 0 0	2	13 2	1 2 0.	0 2 0.
30,000 Almada and Tirito Consol.	1 0 0	—	—	0 5 2.	0 1 0.
20,000 Australian, c. South Australia*	7 7 6	2 1/2	13 23	0 5 2.	0 1 0.
10,000 Battle Mountain, c. (6240 part pd.)	8 0 0	1/2	1 1/2	0 10 0.	0 1 0.
18,000 Birdseye Creek, g, California*	8 0 0	—	—	0 14 0.	0 2 6.
6,000 Bensberg, t, Germany*	4 0 0	—	—	0 14 0.	0 2 6.
12,320 Burra Burra, c. So. Australia	10 0 0 0	4	3 1/2	0 17 4.	0 8 0.
30,000 Cape Copper Mining, * So. Africa	5 0 0	—	—	0 6 0.	0 1 0.
40,000 Cedar Creek, g, California	7 0 0	—	—	37 21 38	0 2 0.
80,000 Central American Association*	5 0 0	—	—	22 15 0.	0 1 0.
18,000 Chicago, t, Utah*	18 16 8	7 1/2	7 1/2	0 6 0.	0 1 0.
21,000 Colorado Terri, s-l, Colorado*	8 0 0	—	—	12 12 6.	0 4 0.
1,000 Deep Pedro Nortel del Rey*	8 0 0	21	21 24	0 12 6.	0 4 0.
4,000 Eberhardt and Aurora, t, Nevada*	18 18 0	25	25 25	0 12 6.	0 4 0.
5,000 Emma, * g, Utah	10 0 0	82	82 84	1 0 0.	0 1 0.
20,000 English and Australian, c. S. Aust.	20 0 0	—	—	13 1/2 13 1/2	0 2 6.
15,000 Ferguson, g, California*	2 10 0	24	24 24	0 14 0.	0 2 6.
80,000 Flaggstaff, t, Utah*	10 0 0	—	—	0 3 0.	0 1 0.
2,500 Fortuna, t, Spain*	10 0 0	75	75 75	0 8 0.	0 1 0.
30,0					